ALEKSANDROV, Andrey Svyatoslavovich; KHANDOV, Z.A., prof., doktor tekhn. nauk, retsenzent; MIRONOVICH, V.P., inzh., red.; SHLENNIKOVA, Z.V., red.izd-va; YERMAKOVA, T.T., tekhn.red.

[Control of heat processes in mass-produced motorships] Teplotekhnicheskii kontrol' seriinykh teplokhodov. Moskva, Izd-vo "Rechnoi transport," 1960. 127 p. (MIRA 13:11)

1. Zaveduyushchiy kafedroy sudovykh silovykh ustanovok Leningradskogo instituta vodnogo transporta (for Khandov).
(Motorships) (Thermodynamics)

KHANDOV, Z., doktor tekhn.nauk

Determining the capacity of marine diesels according to indirect indicators. Rech. transp. 19 no.4:20-22 Ap '60. (MIRA 14:3)
(Marine diesels engines)

KHANDOV, Z.A., doktor tekhn.nauk, prof.; YERMAKOV, V.F., kand.tekhn. nauk

Investigating the feasibility of improving the operations of 3D6 engines. Trudy LIVT no.12:3-10 '61. (MIRA 14:9)
(Marine engines)

KHANDOV, Z.A., doktor tekhn.nauk, prof.

Detonations in the crank case of 6S275L engines. Trudy LIVT no.18:3-5 '61. (MIRA 14:9)
(Marine diesel engines)

KHANDOV, Zosima Aleksandrovich; GITTIS, V.Yu., prof., retsenzent; SOMOV, V.A., red.; VOLCHOK, K.M., tekhn. red.

[Marine internal combustion engines; theory]Sudovye dvigateli vnutrennego sgoraniia (teoriia). Leningrad, Izd-vo "Rechnoi transport," 1962. 452 p. (MIRA 15:12)
(Marine engines)

KHANDOV, Z.A., doktor tekhn.nauk, prof.; YERMAKOV, V.F., kand.tekhn.nauk

Characteristics of diesel cycles with fuel additions to the air charge being compressed. Trudy LIVT no.2:3-22 '60. (MIRA 15:3)

(Marine diesel engines)

SAMOV, Vitaliy Aleksandrovich; BOTKIN, Petr Petrovich; KHANDOV, Z.A., prof., doktor tekhn. nauk, retsenzent; ANDREYEV, P.F., kand. khim. nauk, retsenzent; ZAKHARENKO, B.A., kand.tekhn.nauk, nauchnyy red.; VLASOVA, Z.V., red.; KRYAKOVA, D.M., tekhn.red.

[Fuel for diesel transportation engines]Toplivo dlia transportnykh dizelei. Leningrad, Sudpromgiz, 1963. 355 p. (MIRA 16:4)

(Diesel fuels)

KHANDOV, Zosima Aleksandrovich; YERMAKOV, Vasiliy Fedorovich; BOTKIN, P.P., kand. tekhn. nauk, retsenzent; AL'TMAN, I.R., inzh., retsenzent; ZAKHARENKO, B.A., nauchn. red.; VASIL'YEVA, N.N., red.; KRYAKOVA, D.M., tekhn. red.

[Marine diesel engine operations with a two-stage fuel feed] Rabota sudovogo dizelia s dvukhfaznoi podachei topliva. Leningrad, Sudpromgiz, 1963. 82 p. (MIRA 16:12)
(Marine diesel engines)

ACC NR: AP7001516 (N) SOURCE CODE: UR/0229/66/000/011/0022/0024

AUTHOR: Khandov, Z. A.; Tsapenko, Yu. T.

ORG: None

TITLE: Improving the cavitation erosion resistance of cylinder sleeves and blocks in marine diesels

SOURCE: Sudostroyeniye, no. 11, 1966, 22-24

TOPIC TAGS: cavitation, engine cylinder, diesel engine, marine engineering, corrosion resistance, water, engine cooling system

ABSTRACT: The authors discuss methods for reducing cavitation destruction of the sleeves and water jackets in marine diesels. Conventional methods for reducing sleeve corrosion include: 1. elimination of factors contributing to the development of cavitation bubbles in the space behind the jacket; 2. increasing the corrosion resistance of the sleeve and block surfaces exposed to water and 3. reducing the force of hydraulic shocks generated with the collapse of cavitation bubbles. Cavitation wear may be reduced by increasing the temperature level of the water in the cooling system or by reducing the pressure in the space behind the jackets. The disadvantages of raising the temperature of the cooling water are discussed and it is concluded that pressure reduction is preferable. This may be done by limiting the delivery rate of the water pump, reducing the quantity of water fed into the block during heating of

 UDC: 621.431.74-222:621.436

ACC NR: AP7001516

the engine, using a cooling system with circulation paths through the block and through the discharge receiver, maintaining optimum temperature conditions in each path, and using a cooling system with separate water supply to the block and the cylinder head. Operational tests of these measures on high-speed M50-F3 marine diesels installed on hydrofoil boats showed no signs of cavitation corrosion after 800-900 hours of operation although the same engines with conventional cooling systems show pits with a depth of 2-3 mm after this same time period. Similar tests show that the service life of sleeves in 3D6 engines may be extended to 8000-10000 hours as compared to 3000-5000 hours of engine operation with conventional cooling systems. Orig. art. has: 1 figure.

SUB CODE: 13, 21/ SUBM DATE: None

S/035/61/000/012/035/
A001/A101

AUTHORS: Gul'medova, A., Kullyev, S., ~~Khandovletov,~~ S

TITLE: An experience of photographic photometry of meteors by tying to diurnal trails of stars

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 12, 1961, [illegible], abstract 12A626 ("Izv. AN TurkmSSR, Ser. fiz.-tekhn., khim. i geol. n.", 1961, no. 2, 128-129)

TEXT: The authors describe the results of photographic photometry of 9 meteors whose photographs were taken at the Astrophysical Laboratory of the Physical Engineering Institute, AS TurkmSSR. Their processing was carried out by tying to diurnal trails of B5-F5 stars located near the meteors. Errors of camera field, angular velocity of meteors and the law of reciprocal substitution were taken into account. Maximum visible stellar magnitudes of meteors subjected to photometry are tabulated; light curves of 8 of them are presented graphically. Corrections for non-fulfilment of the law of reciprocal substitution are not taken into account.

[Abstracter's note: Complete translation]

P. Babadzhanov

Card 1/1

KULIYEV, S.; KHANDOVLETOV, S.

Some properties of errors of the photographic objective field. Izv. AN Turk.SSR.Ser.fiz.-tekh., khim.i geol.nauk no.3:129-130 '61. (MIRA 14:7)

1. Fiziko-tekhnicheskiy institut AN Turkmenskoy SSR.
(Meteors) (Astronomical photography)

FREYDZON, A.I.; KHANDOZHKO, L.A., kand. geograf. nauk

"Synoptic meteorology" by A.V.Kunits and M.V.Matveev. Reviewed by A.I. Freidzon, L.A.Khandozhko. Meteor. i gidrol. no.6:49-50 Je '65. (MIRA 18:5)

TARAKANOV, G.G.; KHANDOZHKO, L.A.

Precise method of calculating wind over reservoirs. Trudy GGO no.148:133-136 '63. (MIRA 16:6)

(Winds)

L 36987-66 EWP(j)/EWT(m) RM

ACC NR: AP6008510 SOURCE CODE: UR/0062/66/000/001/0163/0164

42
40
B

AUTHOR: Nesmeyanov, A. N.; Kolobova, N. Ye.; Anisimov, K. N.; Khandozhko, V. N.

ORG: Institute of Heteroorganic Compounds, Academy of Sciences, SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Phenylgermanium and phenylstannic derivatives of rhenium carbonyl

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 1, 1966, 163-164

TOPIC TAGS: phenyl compound, germanium compound, tin compound, rhenium compound, organotin compound, chemical synthesis, organogermanium compound

ABSTRACT: In this work the authors accomplish the synthesis of compounds with a Ge-Re bond and investigate certain properties of these compounds. Compounds of the type $R_{4-n}Ge[Re(CO)_5]_n$ are produced by the reactions of the appropriate organogermanium halides with the sodium salt of rhenium pentacarbonyl $R_{4-n}GeX_n + nRaRe(CO)_5 \rightarrow R_{4-n}Ge[Re(CO)_5]_n + nNaX$, where $R = C_6H_5$; X = Br, Cl; n = 1, 2. From this reaction the authors obtained $Ph_3GeRe(CO)_5$ and $Ph_2Ge[Re(CO)_5]_2$ with yields of 87 and 60%, respectively, in the form of colorless crystals stable in air. Both compounds are readily dissolved in polar solvents and in hydrocarbons with heating. By using halides

UDC: 542.91+547.1'13

Card 1/2

L 36987-66

ACC NR: AP6008510

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721730001-0"

(Br_2), or halogen acids (HCl), the authors synthesized $Br_3GeRe(CO)_5$ and $Ph_2GeRe(CO)_5$. In the reaction of PPh_3, $AsPh_3$, $SbPh_3$ with $Ph_3GeRe(CO)_5$ and $Ph_3SnRe(CO)_5$ the corresponding substitutes are obtained with the general formula $Ph_3M\text{-}Re(CO)_4L$, where M = Ge, Sn; L = PPH_3; $AsPh_3$; $SbPh_3$. The authors thank Yu. N. Sheynker and G. G. Dvoryantseva for measuring the infrared spectra.

SUB CODE: 07 / SUBM DATE: 14May65/ ORIG REF: 002 / OTH REF: 000

Card 2/2

NESMEYANOV, A.N.; KOLOBOVA, N.Ye.; ANISIMOV, K.N.; KHANDOZHKO, V.N.

Phenylgermanium and phenyltin derivatives of rhenium carbonyl. Izv.AN SSSR. Ser.khim. no.1:163-164 '66. (MIRA 19:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. Submitted May 14, 1965.

NESMEYANOV, A.N., akademik; ANISIMOV, K.N.; KOLOBOVA, N.Ye.; KHANDOZHKO, V.N.

Mixed bimetallic organic derivatives of rhenium carbonyl. Dokl. AN SSSR 156 no. 2 383-385 My '64. (MIRA 17:7)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

L 8958-66 EWT(m)/EWP(j)/T RM

ACC NR: AP5026529 SOURCE CODE: UR/0286/65/000/019/0070/0070

AUTHORS: Yeliseyeva, V. I.; Il'ichev, G. I.; Karpeyev, Ye. P.; Metelkin, A. I.; Zharkov, M. N.; Petrova, S. A.; Ionova, N. I.; Gorina, F. A.; Khandozhko, Ye. N.; Zurabyan, K. M.; Loseva, V. A.; Morgulis, I. A.; Arkhangel'skaya, A. P.; Kryuchkova, M. P.

ORG: none

TITLE: Method for obtaining film-forming materials and impregnating materials for trimming and filling of natural and artificial leather. Class 39, No. 175227

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 19, 1965, 70

TOPIC TAGS: leather, polymer, protein, vinyl plastic, acrylic plastic

ABSTRACT: This Author Certificate presents a method for obtaining film-forming and impregnating materials for trimming and filling of natural and artificial leather by modification of vinyl, for instance, acrylic and methacrylic monomers by means of proteins. To increase the thermal, acetone, and water stability of coatings and the durability and filling of the material structure, the starting monomers are emulsified in an aqueous protein solution. The emulsification is followed by

Card 1/2 UDC: 678.744.32-416
677.862.524.1

L 8958-66

ACC NR: AP5026529

polymerization in the presence of oxidation-reduction initiating systems.

SUB CODE: 07/ SUBM DATE: 09Feb62

BVK
Card 2/2

ACC NR: AP6036165 SOURCE CODE: UR/0388/66/000/005/0081/0087

AUTHOR: Khandrikh, K.

ORG: Department of Molecular Physics (Kafedra molekulyarnoy fiziki)

TITLE: On the structure of shock waves

SOURCE: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 5, 1966, 81-87

TOPIC TAGS: shock wave structure, irreversible thermodynamics, shock wave front, Prandtl number, plasma charged particle, plasma temperature

ABSTRACT: In view of the fact that the numerical methods customarily used to determine the structure of a shock wave are not suitable for the investigation of the general properties of the structure, the author develops, based on a "conservation law for irreversible energy flux" which he derives, a method of obtaining general information on the magnitude of the irreversible energy flux in the wave and the profile of the shock wave, from which he determines the structure of shock waves in a gas possessing thermal conductivity and viscosity. The energy flux referred to is that inside the shock front. Approximate analytic expressions are then obtained for the integral curve in two cases, $P \gg 1$ and $P \ll 1$ (P = Prandtl number). With the aid of these approximations it is possible to verify with what accuracy the known integral curves for $P = \infty$ and $P = 0$ are applicable in the case of large and small values of P. They also make it possible to obtain more accurate analytic expressions for the in-

Card 1/2

UDC: 534.222.2

KHANDRIKOVA, T. G.

"Surgical Treatment of the Lateral Ventricles After Gunshot Wounds of the Brain and Skull." Thesis for degree of Cand. Medical Sci. Sub 6 Apr 50, Acad Med Sci USSR

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1950. From Vechernyaya Moskva, Jan-Dec 1950.

KHANDRIKOVA, T.G.

[Surgical therapy of sequelae of gunshot wound in the lateral ventricles of the brain] Khirurgicheskoe lechenie posledstvii ognestrel'nykh ranenii bokovykh zheludochkov golovnogo mozga. Moskva, Izdv. akademii Med. nauk SSSR, 1953. 78 p. (MLRA 7:8)
(Brain--Surgery)

KHANDRIKOVA-MAMEYEVA, T.G., kand.med.nauk (Moskva)

Cholesteatomas in the region of the cauda equina following tuberculous meningitis in children. Vop.neirokhir. 23 no.3: 41-46 My-Je '59. (MIRA 12:8)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni institut neyrokhirurgii imeni akad.N.N.Burdenko Akademii meditsinskikh nauk SSR.

(CHOLESTEATOMA, in inf. & child,
cauda equina, after tuberc. meningitis (Rus))
(TUBERCULOSIS, MENINGEAL, in inf. & child,
cholesteatoma of cauda equina after recovery (Rus))
(CAUDA EQUINA, cysts,
cholesteatoma after tuberc. meningitis in child. (Rus))

NAZAROVA, Ye.M.; KHANDRIKOVA-MAREYEVA, T.G.

Clinical aspects and surgical therapy of late spinal complications following tuberculous meningitis. Probl.tub. 38 no.1:67-75 '60. (MIRA 13:10)
(SPINE—TUBERCULOSIS) (MENINGES—TUBERCULOSIS)

ARENDT, A. A. and [illegible], both at the Institute of Neurosurgery imeni N. N. Burdenko, Academy of Medical Sciences USSR, Moscow - "Cholestestones of the spinal cord after tuberculosis meningitis" - paper to be presented at the General Scientific Session of 17 Oct 61

ARUTYUNOV, A. I., Director, Ukrainian Scientific Research Institute of Neurosurgery, Kiev - "Cerebral edema and the problem of raising intracranial pressure" - paper to be presented at the General Scientific Session of 16 Oct 61

NIKOL'SKIY, V. A., Head, Clinic of Nervous Diseases and Neurosurgery, North Caucasus Medical Institute, Rostov-on-Don, and [illegible], Ye. S., Member, same Clinic - "Types of vascularization of intracranial tumors" - paper to be presented at the General Scientific Session of 19 Oct 61

[illegible], V. N., [illegible], A. N., BADMAYEV, K. N., and VOLKOV, A. A., all at the Leningrad Neurosurgical Institute imeni A. L. Polenov, and [illegible], T. A., Leningrad - "Combined surgical and radiological treatment of intracerebral tumors" - paper to be presented at the General Scientific Session 16 Oct 61

YEGOROV, B. G., Member, Institute of Neurosurgery imeni N. N. Burdenko, Academy of Medical Sciences USSR, Moscow - "The methods and follow-up of surgical treatment of tumors of lateral and third ventricles of the brain" - paper to be presented at the General Scientific Session 17 Oct 61

report to be submitted for the Second Intl. Congress of Neurological Surgery, 14-20 October 1961, Wash. D C.

(10)

KHANDRIKOVA-MAREYEVA, T.G., kand.med.nauk (Moskva)

Surgical treatment of obstructive hydrocephalus following tuberculous meningitis in children. Vop.neirokhir. 25 no.1:52-54 Ja '61. (MIRA 14:2)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni institut neyrokhirgii imeni akad. N.N. Burdenko AMN SSSR.
(MENINGES—TUBERCULOSIS) (HYDROCEPHALUS)

KHANDRIKOVA-MAREYEVA, T.G., kand.med.nauk

Obliteration of the subarachnoid spaces and calcification of the meninges following tuberculous meningitis. Probl.sovr.neirokhir. 4:44-52 '62. (MIRA 16:2)
(MENINGES—TUBERCULOSIS) (BRAIN—CALCIFICATION)

KURDYUMOV, G.V.; BIL'DZYUKEVICH, I.A.; KHANDROS, A.G.; CHERNYY, V.G.

Changes of the fine crystalline structure during the aging of nickel and iron-nickel-base alloys. Issl. po zharopr. splav. 3:183-188 '58. (MIRA 11:11)

(Nickel alloys--Metallography)

KHANDROS, A.Kh., inzhener.

Modernization of lathes at the Chkalov Machine Building Plant. Vest. mash.36 no.7:64-66 Jl '56. (MLRA 9:9)
(Lathes)

KHANDROS, B.

Water cycles. Znan.ta pratsia no.6:31 Je '59.
(MIRA 12:11)
(Water cycles)

KHANDROS, B.

Secret of youth. Izobr.i rats. no.6:14-15 Ja '59.
(MIRA 12:9)
(Osinevich, Vladimir Vasil'evich)

KHANDROS, B.; TAL', I.

On a visit to an Academician. Znan.ta pratsia no.9:9-10 S '59.
(MIRA 13:1)

1.Spetsial'nyye korrespondenty zhurnala "Znannya ta pratsya," Leningrad.
(Joffe, Abram Fedorovich, 1880-)

KHANDROS, B.

Leningrad mint. Znan.ta pratsia no.12:12-13 D '59.
(MIRA 13:4)

(Leningrad--Mints)

KHANDROS, B.

Invaluable collection. Znan. ta pratsia no.2:16-18 F '62.
(MIRA 15:2)

(Riga--Medical museums)

REZNICHENKO, Vladimir Sofronovich; KHANDROS, Dmitriy Anatol'yevich; ZOLOT'KO, A.G., inzh., retsenzent: SMIRNOVA, G.V., tekhn. red.

[Transparent stencils for drawing and construction work] Prozrachnye trafarety dlia chertezhno-konstruktorskikh rabot. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1961. 41 p. (MIRA 15:2)
(Stencils and stencil cutting)

LYSAK, L.I.; VOVK, Ya.N.; KHANDROS, E.L.

Crystal structure of martensite in hardened steel. Fiz. met. i metalloved. 19 no.6:933-935 Je '65. (MIRA 18:7)

1. Institut metallofiziki AN UkrSSR.

KHARIKOS, G.M.

LEONT'YEV, A.P., inzhener; KHANDROS, G.M., inzhener.

Shortcomings in utilizing carload capacity and ways of eliminating them. Zhel.dor.transp.39 no.1:38-41 Ja '57. (MLRA 10:2)
(Railroads--Management)

SIZYKH, Glafira Ivanovna; GAVRILOVA, Yuliya Pavlovna; LEONT'YEV, Andrey Pavlovich; CHERNICHKOV, Viktor Stepanovich; KHANDROS, Gersh Moshkovich; PODTSUYEVA, Lidiya Mikhaylovna; YANKIN, Sergey Mikhaylovich; GITKOVICH, V.K., inzh., red.; MEDVEDEVA, M.A., tekhn. red.

[Advanced work methods for workers engaged in freight operations] Peredovye metody truda rabotnikov gruzovogo khoziaistva. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 91 p. (MIRA 15:3)
(Materials handling) (Railroads--Freight)

KHANDROS, G.M.

Important problems in the improvement of car design and construction. Zhel.dor.transp. 44 no.12:60-62 D '62. (MIRA 15:12)

1. Glavnyy inzh. eksperimental'noy bazy Glavnogo gruzovogo upravleniya Ministerstva putey soobshcheniya.
(Railroads—Cars—Design and construction)

KHANDROS, I.A.

Practical training in building trades. Politekh.obuch. no.3:27-31 Mr '59. (MIRA 12:4)

1. Srednaya shkola No.1, g. Stalinogorsk.
(Building trades--Study and teaching)

KHAIDROS, I.A.

Conducting extracurricular work in occupational education.
Politekh.obuch. no.12:73-75 D '59. (MIRA 13:5)

1. Srednyaya shkola No.1, g.Stalinogorsk.
(Vocational education)

KHAIDROS, I.A.

PHASE I BOOK EXPLOITATION SOV/6246

Soveshchaniye po tseolitam. 1st, Leningrad, 1961.

Sinteticheskiye tseolity; polucheniye, issledovaniye i primeneniye (Synthetic Zeolites: Production, Investigation, and Use). Moscow, Izd-vo AN SSSR, 1962. 286 p. (Series: Its: Doklady) Errata slip inserted. 2500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk. Komisiya po tseolitam.

Resp. Eds.: M. M. Dubinin, Academician and V. V. Serpinskiy, Doctor of Chemical Sciences; Ed.: Ye. G. Zhukovskaya; Tech. Ed.: S. P. Golub'.

PURPOSE: This book is intended for scientists and engineers engaged in the production of synthetic zeolites (molecular sieves), and for chemists in general.

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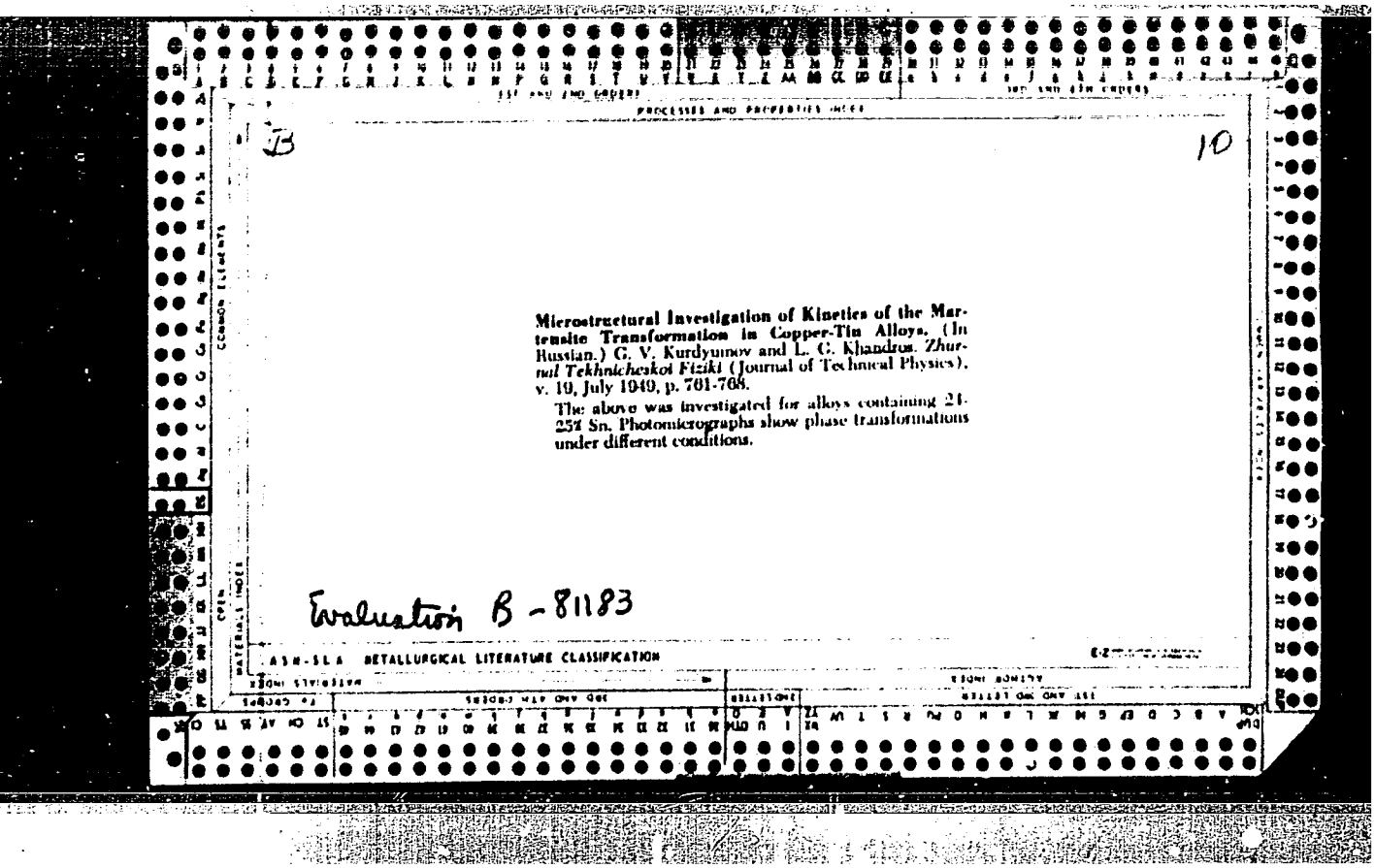
Card 7/12 3/4

Card 8/12 4/4



B

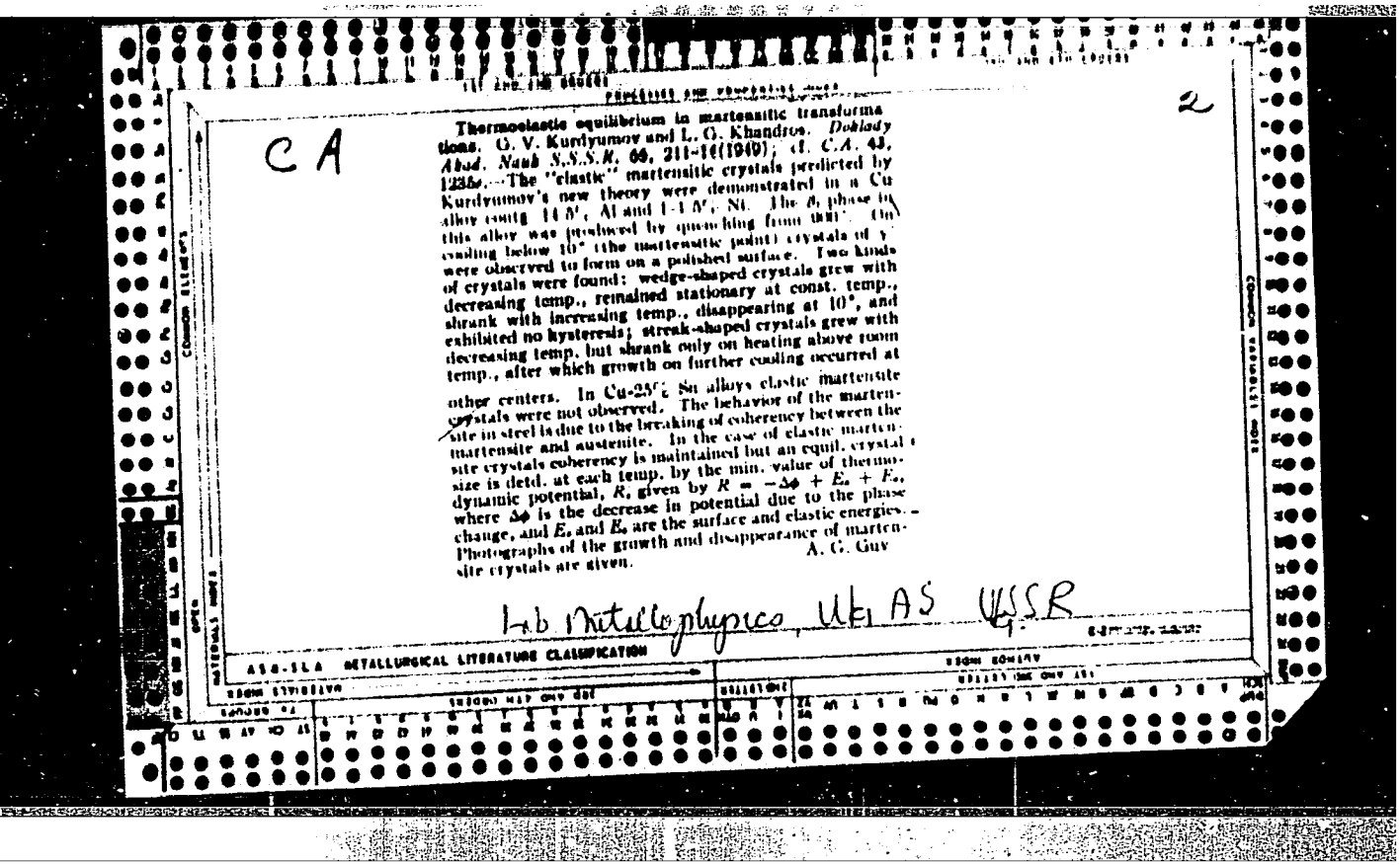
10

Microstructural Investigation of Kinetics of the Martensite Transformation in Copper-Tin Alloys. (In Russian.) G. V. Kurdyumov and L. G. Khandros. *Zhurnal Tekhnicheskoi Fiziki* (Journal of Technical Physics), v. 19, July 1949, p. 761-768.

The above was investigated for alloys containing 21-25% Sn. Photomicrographs show phase transformations under different conditions.

Evaluation B-81183

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

2

Thermoelastic equilibrium in martensitic transformations. G. V. Kurdyumov and L. G. Khandros. *Doklady Akad. Nauk S.S.S.R.* 66, 211-14(1949); cf. *C.A.* 43, 1235e.—The "elastic" martensitic crystals predicted by Kurdyumov's new theory were demonstrated in a Cu alloy (with 14.0% Al and 4.1% Ni). The β_1 phase in this alloy was produced by quenching from 1000°. On cooling below 10° (the martensitic point) crystals of γ were observed to form on a polished surface. Two kinds of crystals were found: wedge-shaped crystals grew with decreasing temp., remained stationary at const. temp., shrank with increasing temp., disappearing at 10°, and exhibited no hysteresis; streak-shaped crystals grew with decreasing temp. but shrank only on heating above room temp., after which growth on further cooling occurred at other centers. In Cu-25% Sn alloys elastic martensite crystals were not observed. The behavior of the martensite in steel is due to the breaking of coherency between the martensite and austenite. In the case of elastic martensite crystals coherency is maintained but an equil. crystal size is detd. at each temp. by the min. value of thermodynamic potential, R, given by $R = -\Delta\phi + E_s + E_e$, where $\Delta\phi$ is the decrease in potential due to the phase change, and E_s and E_e are the surface and elastic energies. Photographs of the growth and disappearance of martensite crystals are given.

A. G. Guy

Lab Metallophysics, Ukr. AS USSR

A.S.T.M. METALLURGICAL LITERATURE CLASSIFICATION

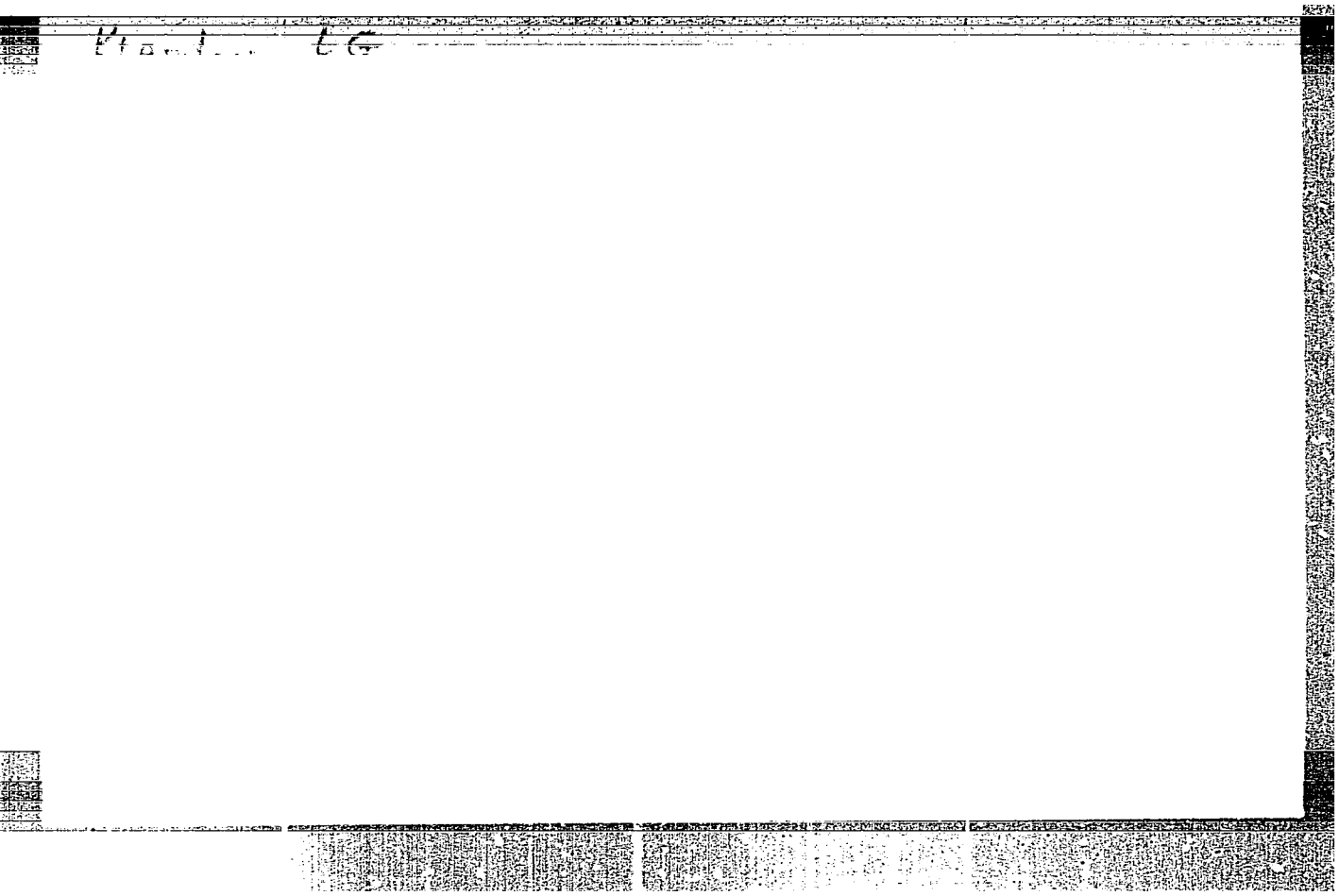
CA

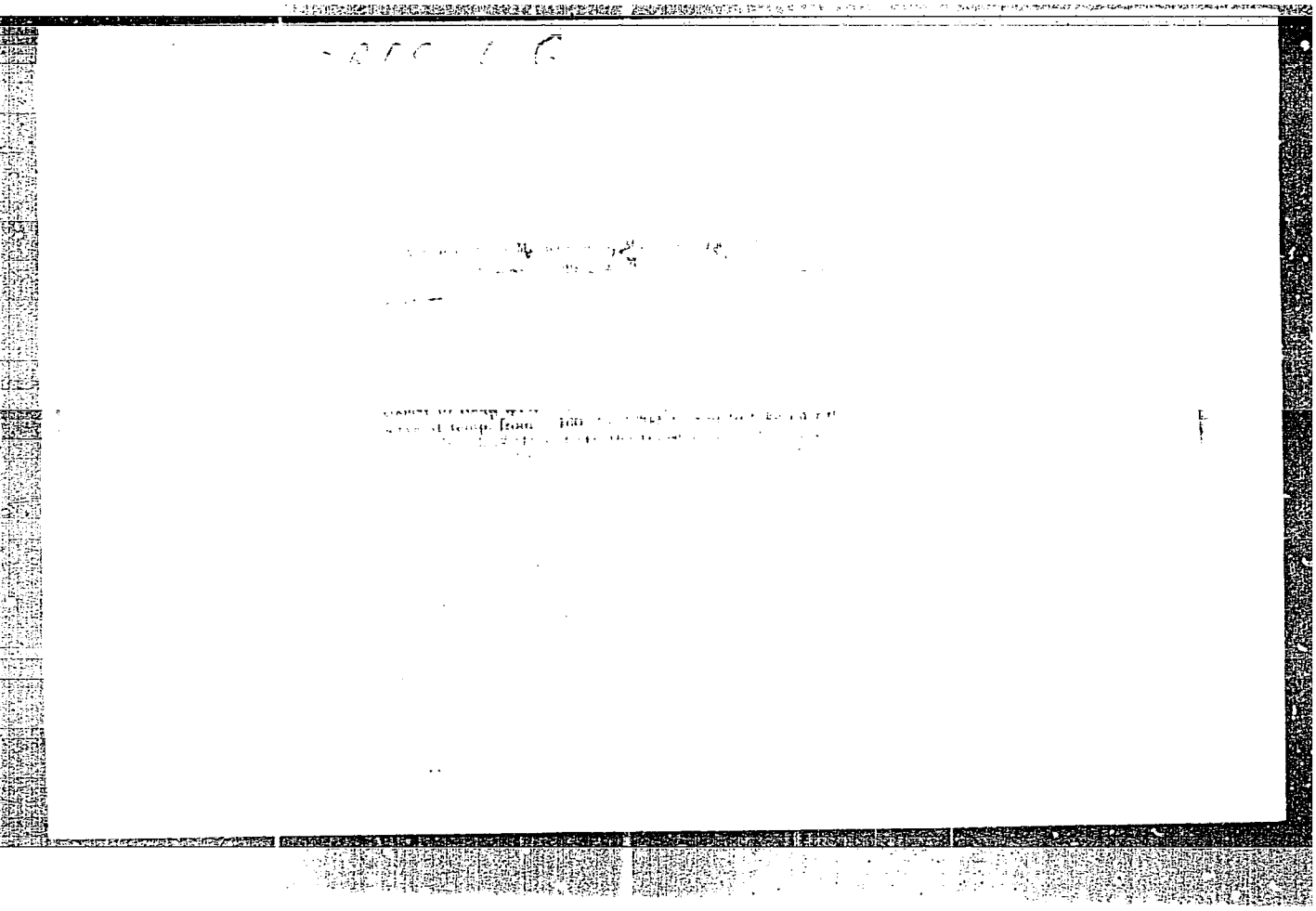
9

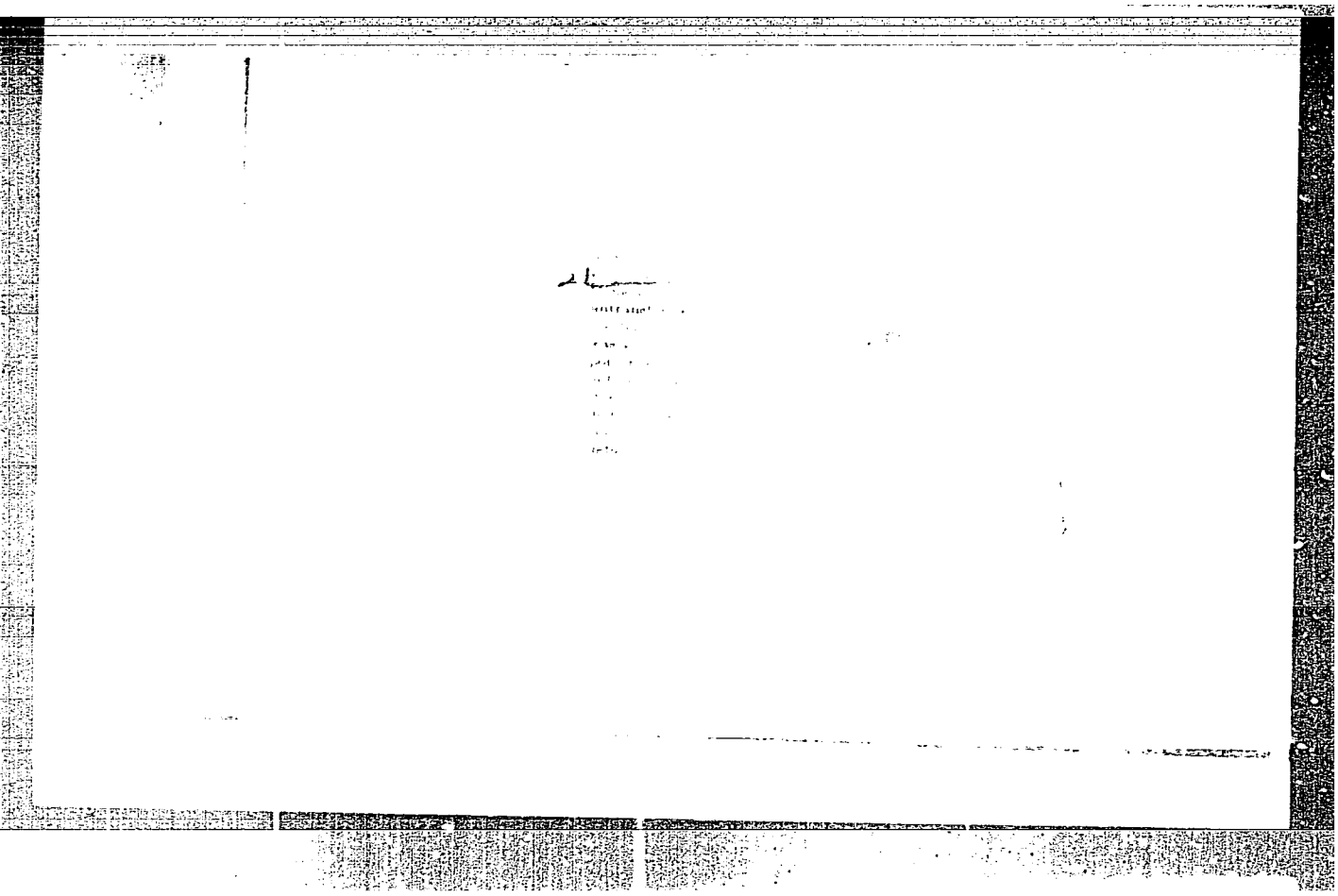
Elastic crystals of the martensite phase in copper-aluminum-nickel alloys. G. V. Kurdyumov and L. G. Khandros. *Doklady Akad. Nauk Ukrain. R.S.S.R.* No. 1, 27–31 (1949); cf. *C.A.* 43, 6280h.—Cu-Al-Ni alloys (I) containing 14.7% Al, 1.6% Ni, and 14.4% Al, 1.5% Ni were used to demonstrate the "elastic" martensitic crystals predicted by K.'s new theory. The β′ phase of NI is preserved by quenching to room temp. from 900°. γ′ Crystals appear on cooling further to 10° (the martensitic point). Quenching of I to room temp. produced γ′ phase as well as a small amt. of β′ phase. The martensitic point for I is 70°. Photographs of phases of NI and I, made at various other temps., are given. It is held that the existence of thermoelastic equil. and elastic crystals have been demonstrated thus providing addnl. support for the K. interpretation of the mechanism of martensitic transformations. M. Senkus

Dissertation: "Investigation Into the Formation of Crystals in Martensitic Steels."
Cand Phys-Math Sci, Laboratory of Metallophysics, Acad Sci Ukr SSR, Kiev, 1953.
Referativnyy Zhurnal--Khimiya, Moscow, No 8, Apr 54.

SO: SUM 184, 16 Nov 1954







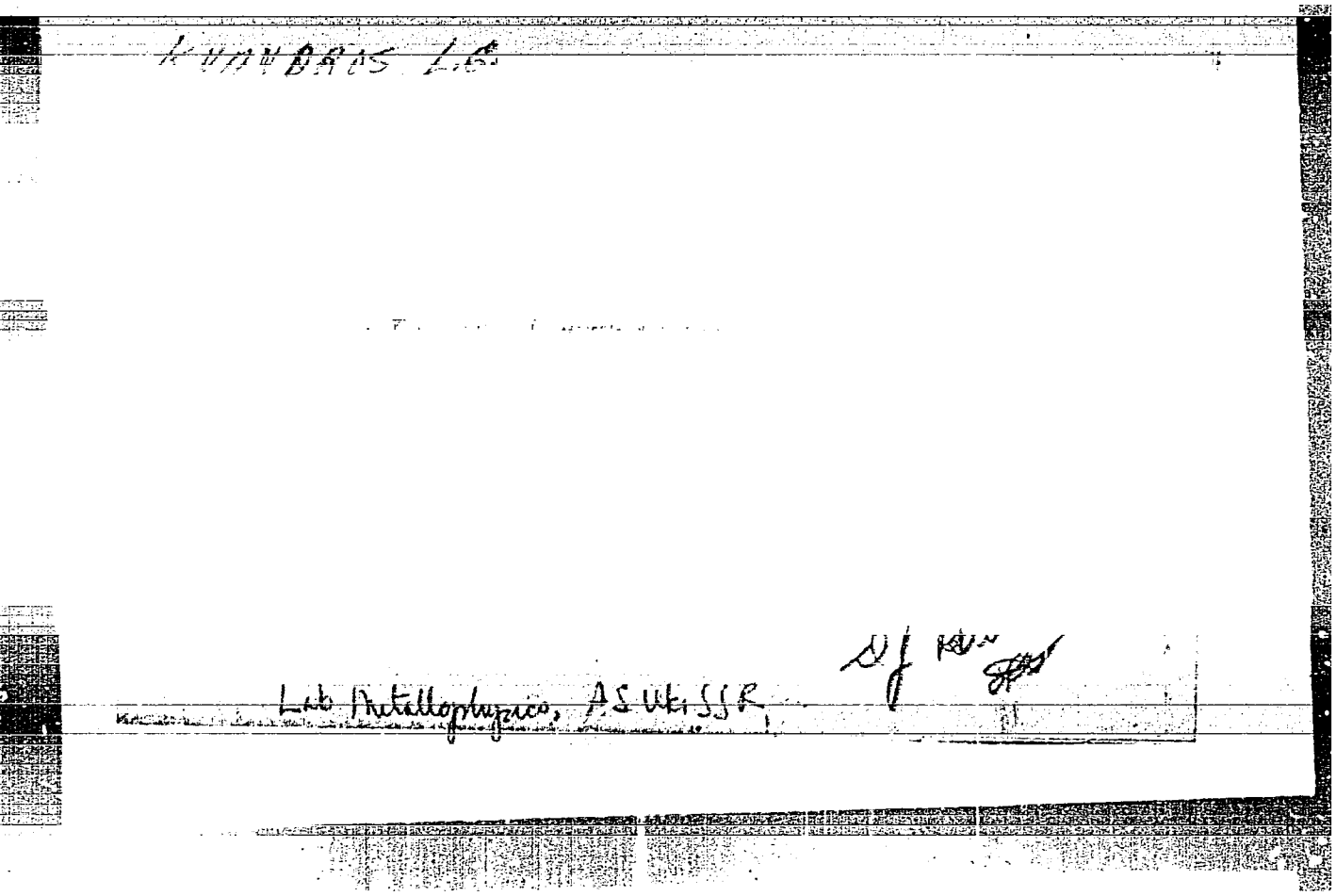
KHANDROS, I. G.

Changes in austenite concentration on deformation of steel. L. I. Lysak and I. G. Khandros. *Dopovidi Akad. Nauk Ukr.R.S.R.* 1953, No. 4, 230-9 (Russian summary, 239).—Quenched and tempered at 125°, steel cylinders were compressed axially in a die reaching a compression of 11% under 30 ton pressure. The x-ray study of slices taken from the center of the deformed cylinders showed progressively decreasing effort of compression on the amt. of the residual austenite. A deformation of 0, 2.30, 8.1, and 11.2% resulted in 28, 20, 9.7, and 4.5% of residual austenite, resp. No definite relation was found between the strength of the steel and the amt. of the residual austenite. J. D. Gat

KHANDROS, L.G.

Changes in the state of γ-phase in iron-nickel alloys following martensite transformation. Fiz. met. i metalloved. 1 no.3:479-483 '55. (MLRA 9:6)

1.Akademiya nauk USSR, Laboratoriya metallofiziki.
(Iron-nickel alloys)



SOV/137-58-9-19839

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 248 (USSR)

AUTHOR: Khandros, L.G.

TITLE: Changes Occurring in Crystalline Substructure of Super Invar During the $\gamma \rightarrow \alpha$ Transformation (Izmeneniye tonkoy kristallicheskoy struktury superinvara pri $\gamma \rightarrow \alpha$ p evrashchenii)

PERIODICAL: Sb. nauchn. rabot In-ta metallofiz. AN UkrSSR, 1957, Nr 8, pp 121-127

ABSTRACT: The investigations performed dealt with the crystalline substructure of super invar (31% Ni, 5% Co), subjected to deformation (15 and 30%) and cooled to various temperatures ranging from +18 to -180°C. The magnitude of the distortions of type II and the dimensions of the blocks were determined from the width of the γ-phase lines (111) and (222) and the α-phase lines (110) and (220) produced by Fe emission in photographic process employing a standard specimen of fine-grained Ni. During cooling the distortions, $\Delta a/a$, in the γ phase increase with increasing quantities of the α phase and attain a magnitude of 2.5×10^{-3} at a temperature of -180°. The dimension, D, of the blocks in the γ phase remains constant during the

Card 1/2

Changes Occurring in Crystalline Substructure of Super Invar (cont.)

transformation and has a magnitude of 5.5×10^{-6} cm. Following a 15% reduction the $\Delta a/a$ in the γ phase amount to 1.6×10^{-3} and, after cooling to a temperature of -146°, attain a value of 2.4×10^{-3}. At a reduction of 15% the size of the blocks in the γ phase remains almost unaltered ($D = 4.2 \times 10^{-6}$ cm) during cooling. Following a 30% reduction, the distortions in the γ phase are equivalent to the distortions resulting from a 15% reduction; as the temperature is lowered to -180°, they attain a magnitude of 3.4×10^{-3}; the dimensions of the γ-phase blocks are the same as in the preceding case. Large values of distortions in the α phase immediately after the appearance of the latter ($\Delta a/a$ 4.6×10^{-3}) and the distortions of the γ phase, which become greater with increasing quantities of martensite, are attributable to large stresses present in the γ-phase crystals adjacent to the newly-formed martensite crystals. Increasing the degree of deformation from 15 to 30% does not increase the type-II distortions in the α phase; this condition is, apparently, connected with the partial transformation of the γ phase under more severe deformations.

1. Nickel alloys--Crystal structure 2. Nickel alloys--Deformation L.M.
3. Nickel alloys--Phase studies

KURDYUMOV, G.V. [Kurdiumov, H.V.]; BIL'DZYUKEVICH, I.A. [BIL'DZIUKEVYCH, I.A.]; KHANDROS, L.G. [Khandros, L.H.]; CHERNYY, V.G. [Chornyi, V.H.]

Change in the fine crystalline structure of some heat-resistant alloys during aging [with summary in English]. Ukr.fiz.zhur. 3 no.4:495-505 Jl-Ag '58. (MIRA 11:12)

1. Institut metallofiziki AN USSR.
(Heat-resistant alloys--Metallography)

KHANDROS, L.G.

18(4,7); 25(1) PHASE I BOOK EXPLOITATION SOV/2306

Akademiya nauk Ukrainskoy SSR. Institut metallofiziki

Voprosy fiziki metallov i metallovedeniya (Problems in the Physics of Metals and Metallography) Kiyev, Izdo-vo AN Ukrainskiy SSR, 1959. (Series: Its: Sbornik nauchnykh rabot, Nr 9) Errata slip inserted. 3,000 copies printed.

Ed. of Publishing House: V.L. Shkurko; Tech. Ed.: M.I. Yefimova; Editorial Board: V.N. Svechnikov, Academician, Academy of Sciences, Ukrainian SSR (Resp. Ed.); S.D. Gertsriken, Doctor of Physical and Mathematical Sciences; and I.Ya. Dekhtyar, Doctor of Technical Sciences.

PURPOSE: This collection of articles is intended for scientific workers, aspirants, and engineers in the fields of the physics of metals, metallography, and metallurgy. It may also be useful to students of advanced courses in metallurgical and physical faculties.

COVERAGE: This collection of articles deals with the following

Card 1/12

topics: effect of high-speed heating, heat treatment, deformations, and crystallization conditions on phase transformations, structures, and properties of metals and alloys; the effect of additional alloying components on volumetric and intercrystalline diffusion in alloys; and the effect of repeated quench hardening and radioactive and ultrasonic treatment on the physical properties of alloys. No personalities are mentioned. References follow several of the articles.

TABLE OF CONTENTS:

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Changes in the substructure of metals due to shifting from statical to vibratory loading were studied. Experiments in which cylindrical specimens of the aluminum alloy, AMTsM, were flattened, statically and with vibrations, between plates at room temperature are described.

which were in a state of equilibrium or quasi-equilibrium before deformation. Also discussed are processes occurring during the deformation of a metastable phase

(Institute for the Physics of Metals, Academy of Sciences,

Electrolytic chromium and iron were used for making the alloys. Spiral samples, 20mm. long, were heated in a vacuum (10^{-4}mm. Hg), and electrical resistivity was measured. The drop of resistivity at the $\alpha \rightarrow \gamma$ transformation is discussed.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721730001-0

time of annealing.

SOV/126---7-5-18/25

AUTHORS: Kurdyumov, G. V., Perkas, M. D. and Khandros, L. G.

TITLE: On the Role Played by Secondary Distortions in the Hardening of Metals (O roli iskazheniy vtorogo roda v uprochnenii metallov)

PERIODICAL: Fizika metallov i metallovedeniye, Vol 7, Nr 5, pp 747-751 (USSR)

ABSTRACT: In this paper binary Fe-Ni alloys containing 10, 25 and 28% nickel were investigated. The specimens were quenched from 1000 - 1050°C and subsequently tempered in the temperature range 100-550°C for 1 hour. The alloy containing 25% Ni was particularly thoroughly investigated. Hardening by quenching results in considerable secondary distortions ($\Delta a/a = 2.8 \times 10^{-4}$), the magnitude of which is close to that obtained in quenched steel containing 0.1% carbon (see Ref.9). The mosaic blocks are broken up to a size of 3×10^{-6} cm, and the ultimate tensile stress (σ_s) and hardness (H_V) are 80 kg/mm^2 and 265 VPN, respectively. Subsequent tempering at 300°C brings about a decrease in the secondary distortion (from 2.8×10^{-3} to 1.9×10^{-3}), but the remaining properties D, H_V, σ_s) remain practically unaltered (see Fig.1).

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On the Role Played by Secondary Distortions in the Hardening of Metals.

Heating the specimens to higher temperatures leads to a further decrease in secondary distortions, and after tempering at 450°C $\Delta a/a$ is 0.3×10^{-3}. After such tempering the hardness and UTS remain practically unaltered, but the block size tends to increase. On heating the specimens to above 460°C the reverse transformation $\alpha \rightarrow \gamma$ takes place, and therefore after cooling to room temperature the microstructure contains the γ-phase together with the α-phase. This γ-phase possesses an increased resistance to transformation to martensite on subsequent cooling. In this connection a study of specimens of this alloy, tempered at temperatures above 460°C, was inexpedient. An attempt was made to attain at least some softening of the Fe + 25% Ni alloy by lengthy soaking of the specimens at a temperature somewhat lower than the beginning of the $\alpha \rightarrow \gamma$ transformation. The specimen was tempered at 440°C for 70 hours. The experimental results, however, have shown that the hardness and the widths of interference lines were close to those obtained after 1 hour's tempering at 450°C. In the Fe +10% Ni alloy the reverse $\alpha \rightarrow \gamma$ transformation begins at approxi-

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On the Role Played by Secondary Distortions in the Hardening of Metals

mately 600°C. Therefore the quenched specimens can be tempered at least up to 550-580°C without running the risk of γ-phase formation. Data on the change of the fine structure and hardness of this alloy are shown in Fig.2. The extent of secondary distortions in a 10% Ni alloy changes little after tempering at 300°C, but a considerable decrease in secondary distortions occurs in a temperature range above 300°C. On tempering at above 450°C an increase in block size and some decrease in hardness is observed. For an Fe + 28% Ni alloy the nature of the change in hardness and fine structure on tempering was the same as in the case of the 25% Ni alloy. In order to elucidate the role played by secondary distortions in the hardening of alloyed iron the following experiments were also carried out with a quenched specimen of the 25% nickel alloy. The alloy hardened by quenching exhibited the following values: $\Delta a/a = 2.8 \times 10^{-3}$, $D = 2.8 \times 10^{-6}$ cm and $H_V = 260$ (see Fig.1). After tempering at 400°C for 1 hour the hardness and block size were practically unaltered and the secondary distortions had decreased to 0.7×10^{-3} (Fig.1). The specimen was then given a cold plastic deformation with a summary reduction in area of 50%. After deformation the secondary distortions had again increased from 0.7×10^{-3}

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On the Role Played by Secondary Distortions in the Hardening of Metals

to 2.0×10^{-3}. The block size and hardness were 2.9×10^{-6} cm and 270 H_V respectively; i.e. they had remained at the same level (see Table p.750). The other specimens of the same alloy were tempered at 450°C after quenching. After tempering, $\Delta a/a$ was 0.3×10^{-3}, D - 3.5×10^{-5} and H_V - 265. As a result of a subsequent cold plastic deformation with a summary reduction in area of 60% the secondary distortions had increased to 2.9×10^{-3} whilst block size and hardness had again changed comparatively little (D = 2.8×10^{-6} cm and H_V = 285). Thus the available data on the relationship between hardness and fine crystal structure of metals and solid solutions enables one to conclude that the most important crystal structure factors determining the hardness of metals and one-phase alloys are, breaking down of the grain size to fragments of 10^{-3}-10^{-4} cm with a considerable disorientation of the lattice between the fragments, and the formation, within the fragment, of a sub-microscopic block structure.

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SOV/126 --7-5-18/25

On the Role Played by Secondary Distortions in the Hardening of Metals

There are 2 figures, 1 table and 9 Soviet references.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChM, Institut metallofiziki AN USSR (Institute of Metallurgy and Physics of Metals TsNIIChM, Institute of Metal Physics, Ac. Sc., Ukrainian SSR)

SUBMITTED: January 22, 1959

Card 5/5

KHANDROS, L.G.

18(7) PHASE I BOOK EXPLOITATION SOV/3355

Akademiya nauk SSSR. Institut metallurgii. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, t. IV (Studies on Heat-resistant Alloys, vol. 4), Moscow, Izd-vo AN SSSR, 1959. 400 p. Errata slip inserted. 2,200 copies printed.

Ed. of Publishing House: V. A. Klimov; Tech. Ed.: A. P. Guseva; Editorial Board: I. P. Bardin, Academician; G. V. Kurdyumov, Academician; N. V. Ageyev; Corresponding Member, USSR Academy of Sciences; I. A. Oding, I. M. Pavlov, and I. F. Zudin, Candidate of Technical Sciences.

PURPOSE: This book is intended for metallurgists concerned with the structural metallurgy of alloys.

COVERAGE: This is a collection of specialized studies of various problems in the structural metallurgy of heat-resistant alloys. Some are concerned with theoretical principles, some with descriptions of new equipment and methods, others with properties of specific materials. Various phenomena occurring under specified conditions are studied and reported on. For details, see Table of Contents. The articles are accompanied by a number of references, both Soviet and non-Soviet.

Studies (Cont.) SOV/3355

Card 7/12

KURDYUMOV, G.V.; KHANDROS, L.G.

Martensite transformation in small particles of Fe-Ni alloys. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.9:3-6 '59. (MIRA 12:9)

(Iron-nickel alloys--Metallography)

KHANDROS, L.G.

Change in the austenite state during martensite transformations of manganese steel. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.9:7-11 '59. (MIRA 12:9)
(Manganese steel--Metallography)

S/601/61/000/013/015/017
D207/D302

18.1110

AUTHORS: Lobodyuk, V. A. and Khandros, L. G.

TITLE: The form of martensitic crystals and the orientation of phase boundaries in the copper-aluminum-nickel and copper-aluminum manganese alloys

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyziky. Sbornik nauchnykh rabot, no. 13, 1961. Voprosy fiziki metallov i metallovedeniya, 147-157

TEXT: The authors determined the form and orientation of martensitic inclusions in Cu + 14.4% Al + 4.7% Ni and Cu + 14.4% Al + + 3% Mn alloys. Alloy monocrystals were cut into rectangular plates of 1.5 x 3 mm cross-section, quenched from 900°C and polished at 60 - 70°C. This treatment produced large martensitic grains which were examined with a РКСО (RKSO) x-ray camera, using Mo radiation and the Laue back-reflection technique. Martensitic grains were wedge-shaped in Cu-Al-Ni monocrystals and their 'midrib'

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S/601/61/000/013/015/017
D207/D302

planes were close to $\{110\}_\beta$; the planes of the grain boundaries usually coincided with the $\{331\}_\beta$ plane, but there were often large deviations from this orientation. In Cu-Al-Mn monocrystals the habit planes of martensitic grains had poles concentrated around a point which was 5 - 6° of arc from the $\{133\}_\beta$ plane. The considerable scatter of the habit-plane poles was due to stresses during crystal growth. There are 9 figures, 4 tables and 11 references: 10 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: L. C. Chang and T. A. Read, Trans. AIME, 189, (Jan., 1951).

SUBMITTED: September 12, 1960

Card 2/2

35386

S/601/61/000/013/016/017
D207/D302

18.1770

AUTHORS: Titov, P. V. and Khandros, L. G.

TITLE: Hysteresis in the martensitic transformation in copper-aluminum and copper-aluminum-nickel alloys

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot, no. 13, 1961. Voprosy fiziki metallov i metallovedeniya, 158-166

TEXT: The authors investigated the martensitic transformation in the following alloys: (I) Cu + 14.1% Al, (II) Cu + 14.9% Al + 1.6% Ni, (III) Cu + 14.9% Al + 1.8% Ni, (IV) Cu + 15.1% Al + 5.6% Ni. The alloys were prepared from materials of 99.99% purity, in graphite crucibles under a flux. After a six-hour homogenizing annealing at 900°C, they were quenched. Crystal structure was examined by x-ray diffraction using Fe radiation. At room temperature the alloys consisted of the β_1-phase (Cu-Al also contained the γ-phase). Measurements of the electrical resistance, with a ППТН-1

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S/601/61/000/013/016/017
D207/D302

(PPTN-1) potentiometer, on cooling down to -180°C and on heating back to room temperature showed hysteresis loops. These loops indicated that the $\beta_1 \rightarrow \gamma'$ martensitic transition on cooling occurred at temperatures different from those during the reverse $\gamma' \rightarrow \beta_1$ transition on heating. The $\beta_1 \rightarrow \gamma'$ transition temperatures were (the first value gives the beginning and the second the end of the transition): -5 and -45°C for alloy (I); -25 and -70°C for alloy (II); -25 and -90°C for alloy (III); -45 and -90°C for alloy (IV). The $\gamma' \rightarrow \beta_1$ transition temperatures were (notation as above): +5 and +45°C for alloy (I); -25 and +5°C for alloy (II); -60 and -10°C for alloy (III); -85 and -45°C for alloy (IV). Acknowledgement is made to Academician G. V. Kurdyumov for his advice. There are 9 figures, 2 tables and 12 Soviet-bloc references.

SUBMITTED: September 1, 1960

Card 2/2

KURDYUMOV, G.V.; LOBODYUK, V.A.; KHANDROS, L.G.

Form of martensite crystals and the orientation of the interphase boundaries in the alloy Cu-Al-Ni. Kristallografiia 6 no.2:210-217 Mr-Ap '61. (MIRA 14:9)

1. Institut metallofiziki AN USSR.
(Martensite crystals) (Phase rule and equilibrium)
(Copper-aluminum-nickel alloys)

20215

S/126/61/011/002/014/025
E193/E483

18 7500

AUTHORS: Arbuzova, I.A., Kurdyumov, G.V. and Khandros, L.G.

TITLE: Growth of Elastic Crystals of the Martensitic γ'-Phase Under the Action of Applied Stress

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.2, pp.272-280

TEXT: When a martensitic transformation takes place in an alloy, considerable stresses of either side are set up in the matrix by the first-to-form martensite grains. In some regions these internal stresses may bring about nucleation and growth of new martensite grains, in others they may have an opposite effect. The object of the investigation described in the present paper, was to establish whether the same effect can be produced by externally applied stresses. The experiments were carried out on a Cu-base alloy, containing 14.44 wt.% Al and 4.75 wt.% Ni, in which the martensitic transformation $\beta_1 \rightarrow \gamma'$ begins at app 30°C. To facilitate visual examination of the relief patterns, the experimental specimens (measuring 0.7 x 2.5 x 12 mm), preliminarily quenched from 900°C, were heated to 70°C and polished at this temperature. After cooling to room temperature, several martensite

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E193/E483

needles appeared on the specimen surface but the bulk of the alloy remained untransformed. The effect of the application of external stress was studied with the aid of a specially designed apparatus, schematically illustrated in Fig.1. The apparatus consists of a vacuum chamber (4) which incorporates a rod (5), mounted on bellows and used to heat or cool the test piece (7), and a pair of grips (6) for fastening the test piece. (The temperature of the rod is changed with the aid of a thermos flask, containing a hot liquid or liquid nitrogen.) One of the grips is rigidly attached to the body of the vacuum chamber, the other being joined to a connecting rod which enters the vacuum chamber through an opening, provided with a rubber seal. A dial gauge indicator (8) for measuring the strain is rigidly attached to the vacuum chamber, its plunger pressing against a regulating spring, attached to the connecting rod, the latter being joined to a ring dynamometer (11). Stress is applied by turning the handle (9) and its magnitude is shown on an indicator (12), calibrated in kg/mm^2. The vacuum chamber is closed by a lid (13), provided with a window (14) through which the test piece can be observed through a microscope (2), or photographed with the aid of a photo-camera (1). In one

S/126/61/011/002/014/025
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series of experiments, a test piece was subjected to tensile or compressive stresses and the resultant movement of the phase boundaries was studied directly by visual examination of the polished specimen surface. In other experiments, the test pieces were cooled from above the martensitic transformation temperature and the resultant variation of the relative quantities of the β_1 and γ^1 phases was assessed. The results indicated that growth, or a decrease in size, of a martensitic phase crystal can be caused either by the variation of temperature or by the application of external stress. Although the growth of a martensitic crystal can be induced by both tensile and compressive stresses, it is only the favourably oriented grains that increase in size in either case. When the direction of the applied stress is changed, crystals with a certain orientation of the habit planes disappear and grains with a different orientation are formed in their place. The movement of the phase boundaries takes place both on the application and on removal of the external load. When, however, martensitic grains are formed under conditions such that only one boundary intersects a whole single crystal, no movement of the boundary takes place on removal of the applied load. The behaviour of crystals with a

S/126/61/011/002/014/025
E193/E483

single boundary under the action of applied stress is similar to that induced by temperature variation and can be compared to the behaviour of elastic twins, intersecting a single crystal. There are 4 figures and 6 Soviet references.

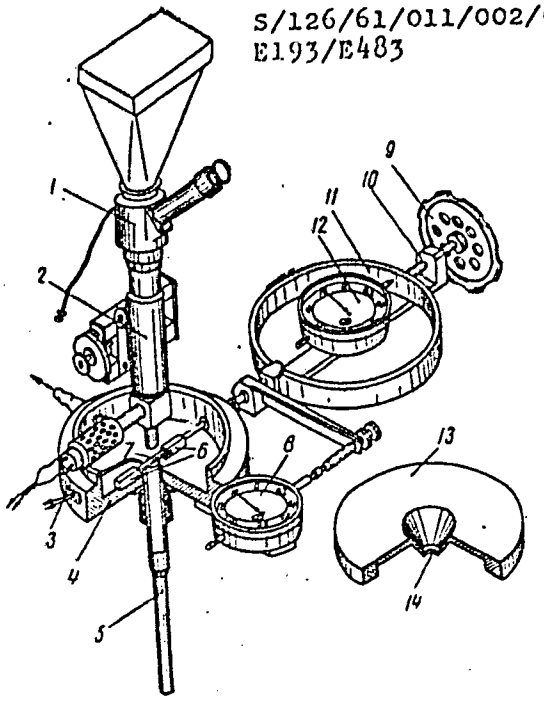
ASSOCIATION: Institut metallofiziki AN UkrSSR
(Institute of Physics of Metals AS UkrSSR)

SUBMITTED: June 2, 1960

S/126/61/011/002/014/025
E193/E483

Growth of Elastic ...

Fig. 1



Card 5/5

S/126/62/014/001/013/018
E111/E135

AUTHORS: Lobodyuk, V.A., and Khandros, L.G.

TITLE: Changes in the state of the β-phase during martensitic transformation in a Cu-Al-Ni alloy

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.1, 1962, 133-135

TEXT: In previous work one of the authors reported on fragmentation and recombination of crystals during martensite transformation and heating. In the present work the behaviour of a single β-phase grain in a Cu-Al-Ni alloy with 14.4% Al and 4.7% Ni (according to the melting charge composition) has been studied, using the Laue back-reflection method. Patterns were obtained from a given martensite crystal during forward and reverse transformations, the camera being provided with a small heater. The final β-phase crystal consisted of six fragments at a certain angle to each other. Further slight heating led to rotation of these fragments into their original positions. The fact that heating by only 10-12 °C is sufficient for restoring

Card 1/2

the original β-crystal indicates that the low-angle boundaries between fragments move easily.
There are 3 figures.

ASSOCIATION: Institut metallofiziki AN USSR
(Institute of Physics of Metals, AS Ukr.SSR)

SUBMITTED: January 19, 1962

Card 2/2

S/601/62/000/014/009/012
1003/1203

AUTHORS: Titov, P. V. and Khandros, L. G.

TITLE: The influence of additions of nickel and of manganese on the martensitic transformations in Cu-Al alloys

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot. no. 14. Kiev, 1962. Voprosy fiziki metallov i metallovedeniya, 105–110

TEXT: The present work is an attempt to investigate the influence of the factors responsible for the temperature lag in the $\beta \rightleftarrows \alpha$ martensitic transformation in Cu-Al alloys. The alloy to be investigated was homogenized at 900°C, and rolled into sheets from which the samples were cut out. The addition of some percent of manganese to Cu-Al alloys does not change the structure of either the β or of the martensitic phase, while the addition of nickel does not change the structure of the high-temperature phase but leads to a change in the structure of the martensitic phase. The combined addition of both mangenese and nickel decreases the $A_c - A_r$ lag. Addition of manganese decreases the temperature of the martensitic transformation. The transformation of the β-phase into martensite in Cu-Al-Si alloys results in a 0.5% change in volume, while in the Cu-Al-Mn alloys this change lies wihtin the limit of experimental error and does not exceed 0.1%. There are 6 figures.

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TITOV, P.V.; KHANDROS, L.G.

Effect of nickel and manganese additions on the martensite transformation in Cu-Al alloys. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.14:105-110 '62. (MIRA 15:6)
(Copper-aluminum alloys--Metallography)
(Phase rule and equilibrium)

ARBUZOVA, I.A.; KHANDROS, L.G.

Existence of martensite crystal formation centers above the point of metastable equilibrium. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.14:147-151 '62. (MIRA 15:6)
(Phase rule and equilibrium) (Alloys--Metallography)

LOBODYUK, V.A.; KHANDROS, L.G.

Shape of martensite crystals and the orientation of interphase boundaries in copper-aluminum-nickel and copper-aluminum-manganese alloys. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.13:147-157 '61. (MIRA 14:12)

(Copper-aluminum-nickel alloys--Metallography)
(Copper-aluminum-manganese alloys--Metallography)
(Martensite)

LOBODYUK, V.A.; KHANDROS, L.G.

Changes in the state of the β-phase during the martensite transformation in Cu-Al-Ni alloys. Fiz. met. i metalloved. 14 no.1:133-135 Jl '62. (MIRA 15:7)

1. Institut metallofiziki AN USSR.
(Copper-aluminum-nickel alloys--Metallography)

S/601/62/000/016/013/029
E193/E383

AUTHORS: Titov, P.V. and Khandros, L.G.

TITLE: The effect of uniaxial tension on the martensitic transformation in Cu-Al-Ni alloys

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot. no. 16. Kiyev, 1962. Voprosy fiziki metallov i metallovedeniya. 103 - 110

TEXT: Electrical resistance and dilatometric measurements were used to study the effect of externally applied elastic tensile stresses (0.7 - 7.5 kg/mm^2) on the martensitic transformation in 80.8%Cu/14.4% Al/4.8% Ni and 83.5% Cu/14.9% Al/1.6% Ni alloys. The experiments were carried out on a specially designed equipment, incorporating a thermostat for accurate control of the temperature of the test pieces, and progress of the transformation during both cooling and heating was followed. The final results for the 80.8% Cu/14.4% Al/4.8% Ni alloy are reproduced in Fig. 5, where the increase in the proportion of the martensitic phase ($\delta M/\delta t$, wt.%/$^\circ$C) is plotted against the temperature ($^\circ$C), the

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The effect of ....

graphs a and c relating, respectively, to unstressed specimens and specimens under a load of 7.5 kg/mm^2, the cooling and heating cycles being denoted by circles and crosses, respectively. Conclusions 1) Application of elastic stress brings about an increase in the reversible deformation accompanying the martensitic transformation in Cu-Al-Ni alloys and shifts this transformation towards higher temperatures. The beginning and end of the reverse transformation (i.e. that taking place on heating) are also shifted towards higher temperatures. 2) If a specimen of a Cu-Al-Ni alloy is cooled and heated through the transformation range with the external elastic stress applied during the heating cycle only, the temperature of the reverse transformation is not shifted and under these conditions the hysteresis of the transformation decreases. 3) The martensitic transformation in the alloys studied extends over a wider temperature interval when they are under externally applied stresses. There are 6 figures.

SUBMITTED: January 15, 1962

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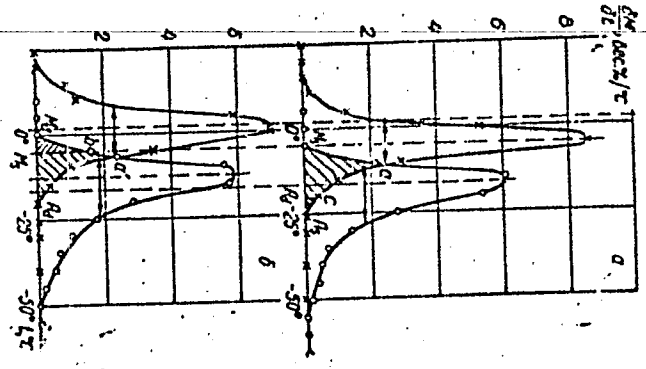
S/601/62/000/016/013/029
E193/E383

The effect of ....

Fig. 5:



Card 3/3

S/185/63/008/001/017/024
D234/D308

AUTHORS: Titov, P. V. and Khandros, L. G.

TITLE: Thermoelastic and residual crystals of martensitic β"-phase in a Cu-Sn alloy

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 8, no. 1, 1963, 109-115

TEXT: The authors investigated the effect of the rate of heating on the length of a Cu-Sn alloy containing 24.8% Sn (by weight). It is established that reverse martensite transformation occurs at about 0°C in the case of rapid heating from -196°C to room temperature, and begins at about 70°C in the case of slow heating. This is attributed to stress relaxation during slow heating, which decreases the elastic energy. After relaxation, the reverse transition can occur only below T_0. In the case of rapid heating there is no relaxation. Thermoelastic and residual crystals of martensite phase have been observed here in the same material. There are 4 figures.

Card 1/2

S/185/63/008/001/017/024
D234/D308

Thermoelastic and residual ...

ASSOCIATION: Instytut metalofizyky AN URSR, Kiev (Institute of Metal Physics of the AS UkrSSR, Kiev)

SUBMITTED: June 29, 1962

Card 2/2

LOBODYUK, V.A.; KHAIDROS, L.G.

Crystallogeometric correlations in the Cu-Sn alloy. Sbor. nauch. rab. Inst. metallofiz. AN URSR no.17:170-173 '63. (MIRA 17:3)

LOBODYUK, V.A.; KHANDROS, L.G.

Reorientation of the lattice of the martensite phase during transformation. Dokl. AN SSSR 153 no.4:807-809 D '63. (MIRA 17:1)

1. Institut metallofiziki AN UkrSSR. Predstavleno akademikom G.V. Kurdyumovym.

ACCESSION NR: AP4028997 S/0126/64/017/003/0390/0399

AUTHOR: Arbuzova, I. A.; Khandros, L. G.

TITLE: Abnormal expansion and decrease of plastic deformation resistance during a martensite conversion in a copper-aluminum-nickel alloy

SOURCE: Fizika metallov,i metallovedeniye, vol. 17, no. 3, 1964, 390-399

TOPIC TAGS: copper base alloy, aluminum containing alloy, nickel containing alloy, martensite conversion, plastic deformation, abnormal expansion, abnormal decrease

ABSTRACT: The authors investigate the dependence of deformation on the stress within the temperature range of a martensite conversion in a copper-aluminum-nickel alloy. Abnormal expansion and increase in the extent of yield, observed within this temperature range, is explained by the primarily directed cooperative transfer of atoms during a rearrangement of the lattice. A diagram of the installation used in the experiment as well as graphs of the dependence of deformation on stress are given. Abnormally large expansion is observed in the copper-aluminum-nickel alloy within the martensite conversion temperature range due to a stretching load effect. Removal of the load does not restore the initial dimensions of the sample. These can be obtained by supplementary heating above the temperature of reversible

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ACCESSION NR: AP4028997

conversion. A strong decrease in the extent of yield is observed within this same temperature range. These phenomena (also observed in other alloys) are associated with the prime orientation of regions which undergo a macroscopic shift during the conversion process under load caused by the very mechanism of the martensite conversion. This is confirmed by the observed change in orientation of the martensite crystal limitations under the effect of the applied stresses, as well as the possibility of an almost total restoration of the initial dimension of the sample. Orig. art. has: 6 figures.

ASSOCIATION: Institut metallofiziki AN SSSR (Institute of Metallophysics, AN SSSR)

SUBMITTED: 14May63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: ML NO REF SOV: 009 OTHER: 008

Card 2/2

LOBODYUK, V.A.; KHANDROS, L.G.

Determination of a macroscopic shift during martensite transformations in Cu-Al-Ni alloys. Fiz. met. i metalloved. 17 no.6: 936-938 Je '64. (MIRA 17:8)

1. Institut metallofiziki AN UkrSSR.

ACCESSION NR: AT4042831 S/2601/64/000/018/0040/0046

AUTHOR: Arbuzova, I.A., Khandros, L. G.

TITLE: Effect of stress on deformation of an alloy of Cu, Al and Ni at martensitic transformation temperatures

SOURCE: AN UkrSSR. Institut metallofiziki. Sbornik nauchny*kh rabot, no. 18, 1964. Voprosy* fiziki metallov i metallovedeniya (Problems in the physics of metals and physical metallurgy), 40-46

TOPIC TAGS: copper alloy, copper aluminum nickel alloy, martensitic transformation, alloy deformation, deformation stress dependence, deformation temperature dependence, reversible deformation, permanent elongation, aluminum containing alloy, nickel containing alloy

ABSTRACT: Interrelationships between mechanical and thermal phenomena during martensitic transformation were studied on an alloy containing 8% Ni, 14% Al and 78% Cu. After forging and annealing (3 hrs., 900C), the samples were hardened by quenching from 900C in a caustic soda solution in water and polished at 70C to facilitate visual observation

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ACCESSION NR: AT4042831

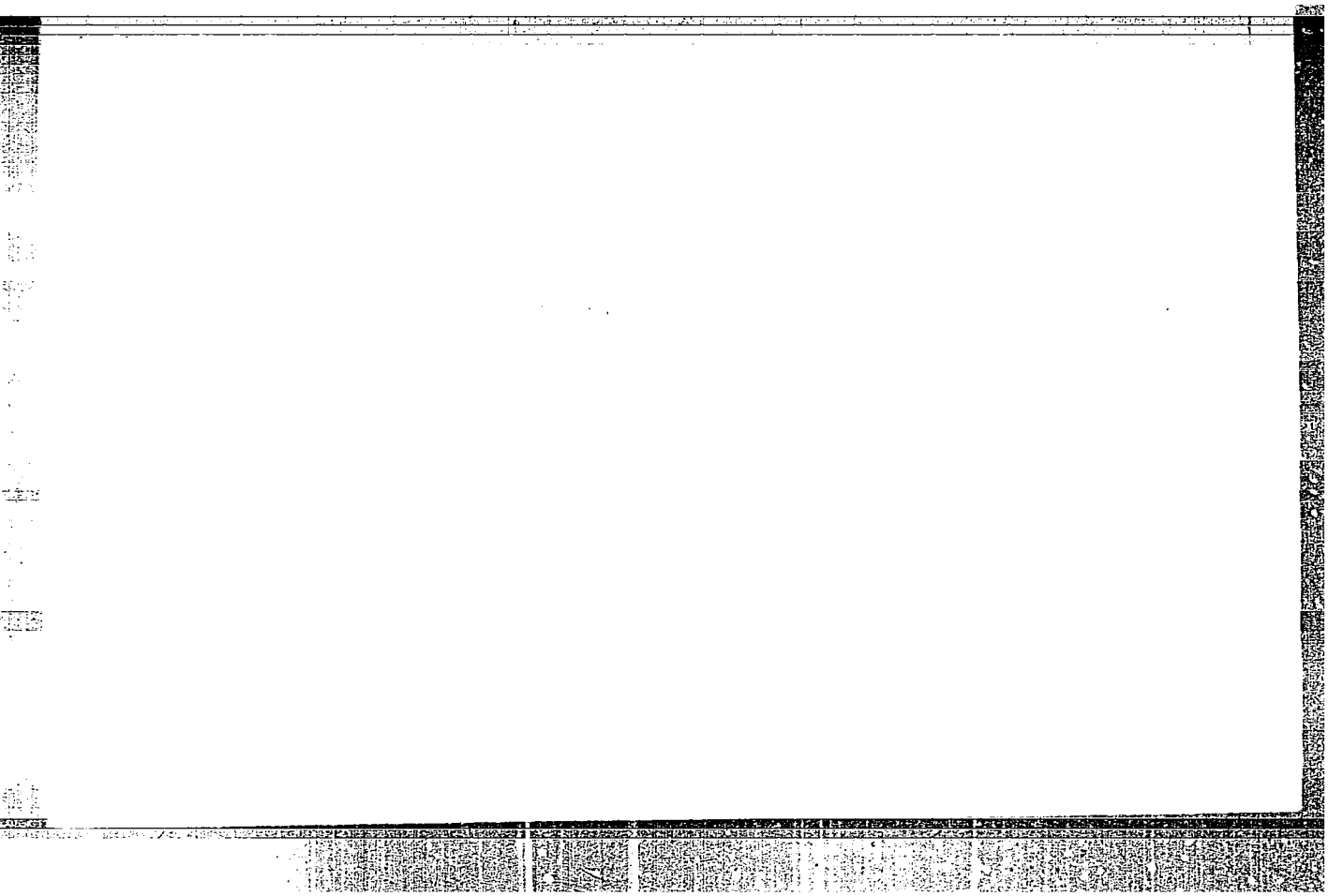
of the transformation on the basis of surface relief. Results are plotted as stress-deformation and temperature-deformation curves and indicate that deformation increased nearly linearly with stress for small loads. Deformation receded as stress was reduced, to a permanent set of 0.2% (in this case). Heating to 56C reduced this further to a minor irreversible deformation related to relaxation processes. The angle of $\sigma = f(\varepsilon)$ curves for the range 0-56C is governed basically by the temperature discrepancy from the martensitic transformation point, which also affects the magnitude of the residual elongation. Orig. art. has: 5 figures.

ASSOCIATION: Institut metallofiziki AN UkrSSR (Metallophysics Institute, AN UkrSSR)

SUBMITTED: 16Mar63 ENCL: 00

SUB CODE: MM NO REF SOV: 003 OTHER: 000

Card 2/2



APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721730001-0"

ACCESSION NR: AT4042835

ENCLOSURE: 01

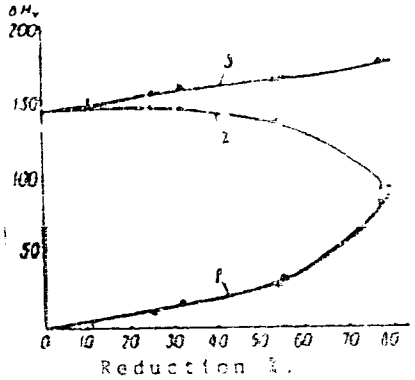


Fig. 1. Effect of deformation on hardness increase

1 - Hardness increase effected by plastic deformation at 473K and subsequent cooling to room temperature; 2 - hardness decrease effected by subsequent cooling to 77K; 3 - total hardness increase.

Card 3/3

LOBODYUK, V.A.; KHANDROS, L.G.

Changes in the state of crystals of the initial and martensite phases during direct and reverse transformations. Fiz. met. i metalloved. 18 no.3:409-415 S '64. (MIRA 17:11)

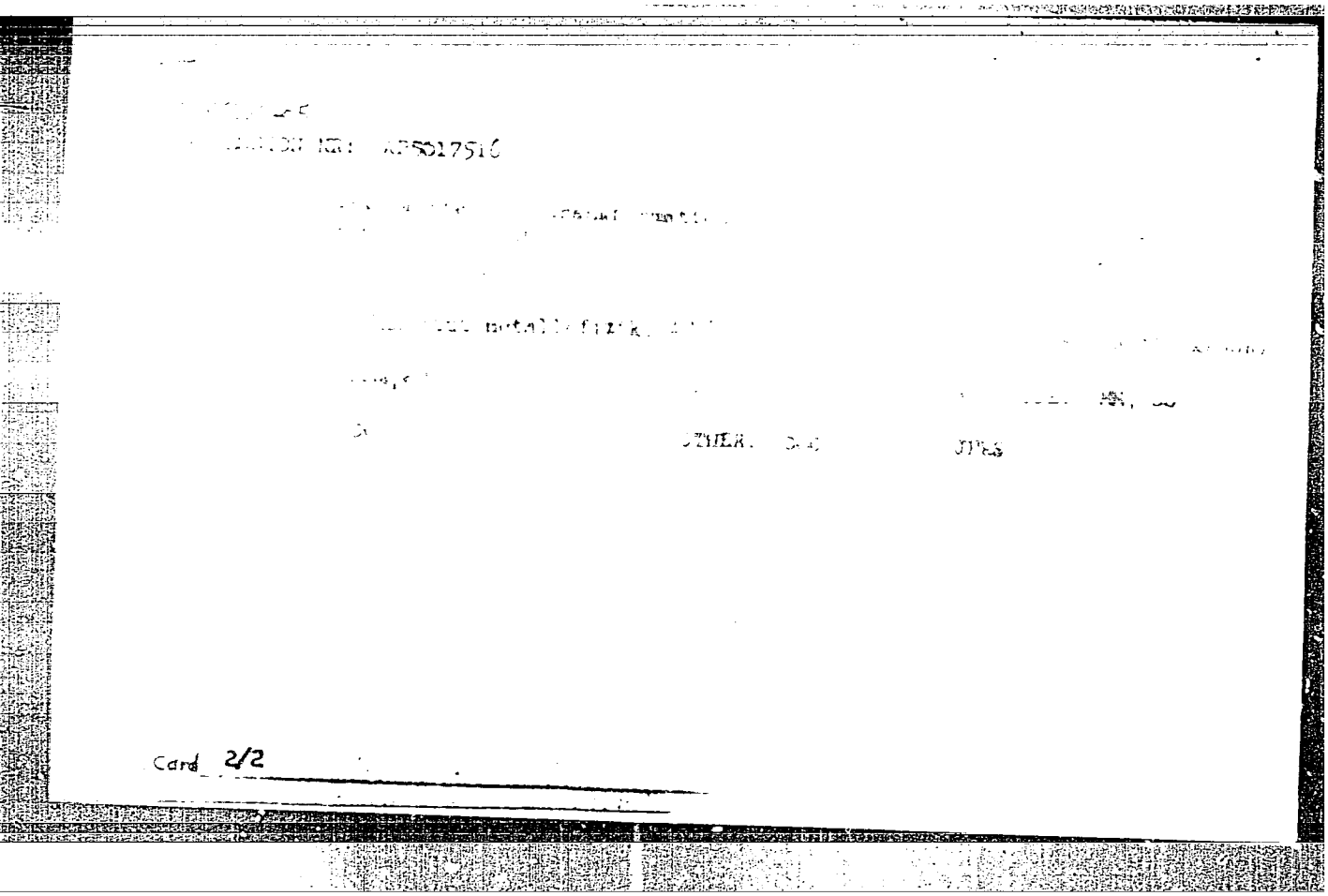
1. Institut metallofiziki AN UkrSSR.

L 55329-65 EWT(1)/EWT(m)/EWP(t)/T/EEC(b)

Khandros, L. G.

TITLE: Reorientation of gamma'-phase crystals ... transformation

transformation



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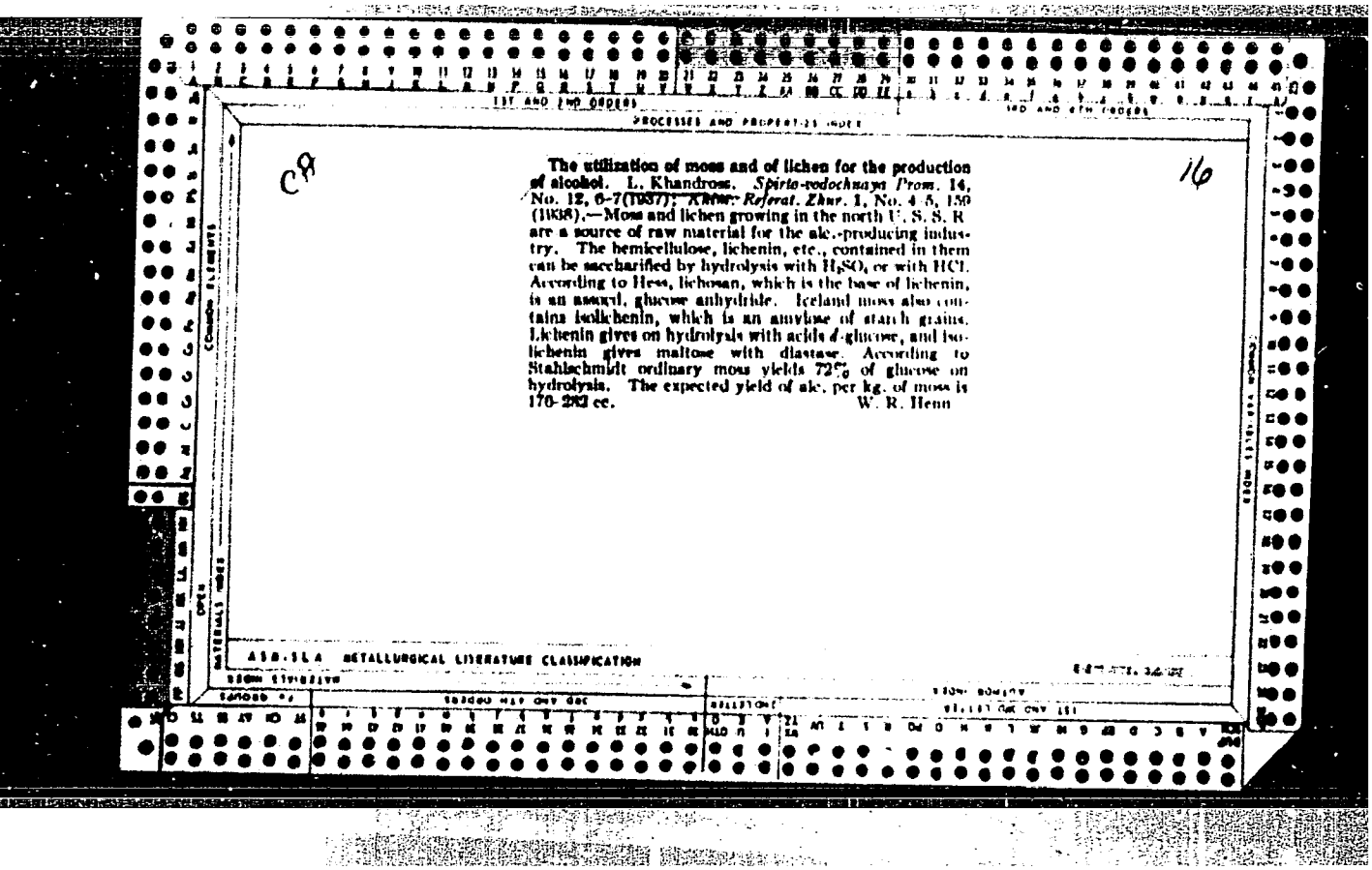
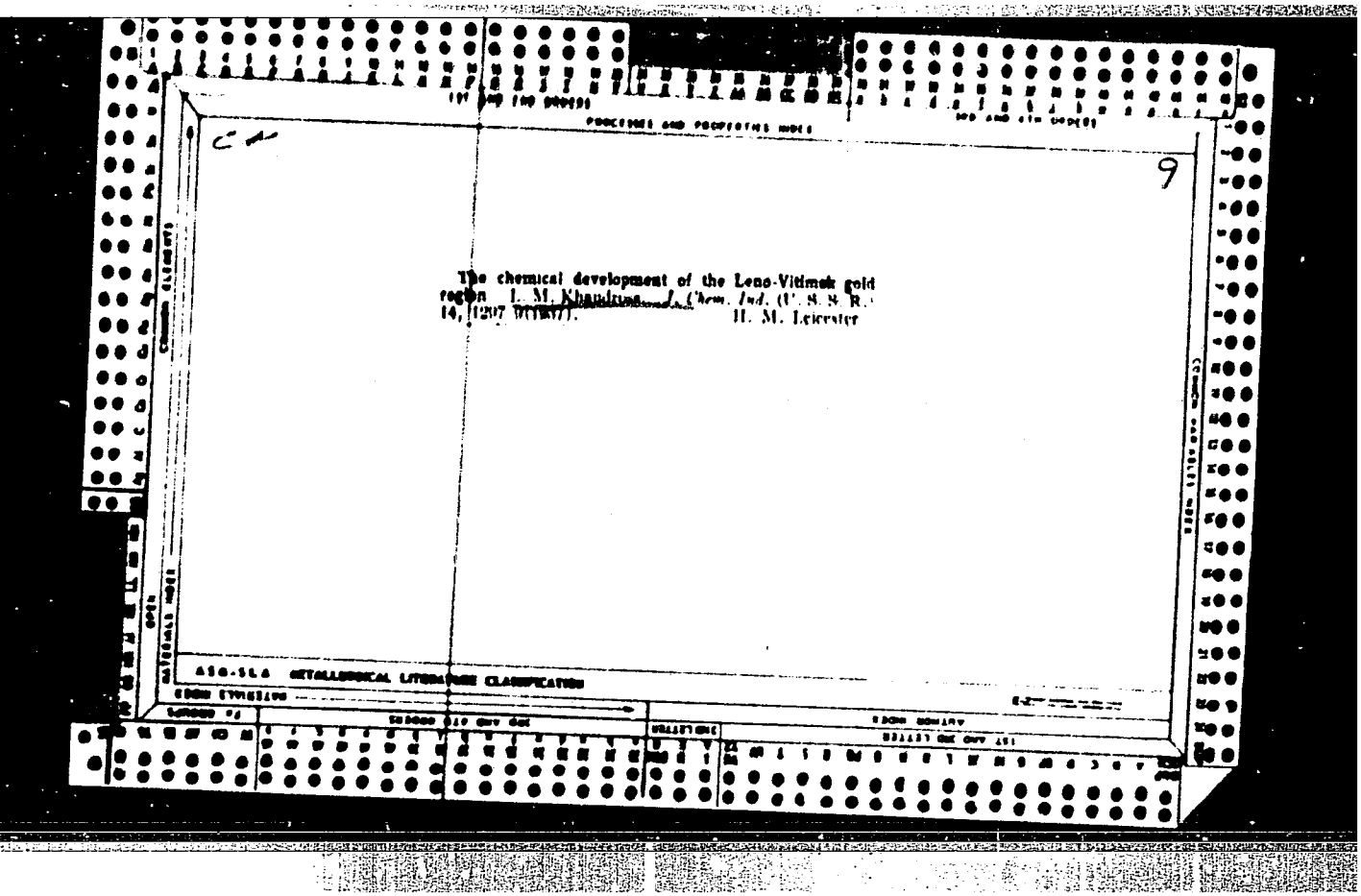


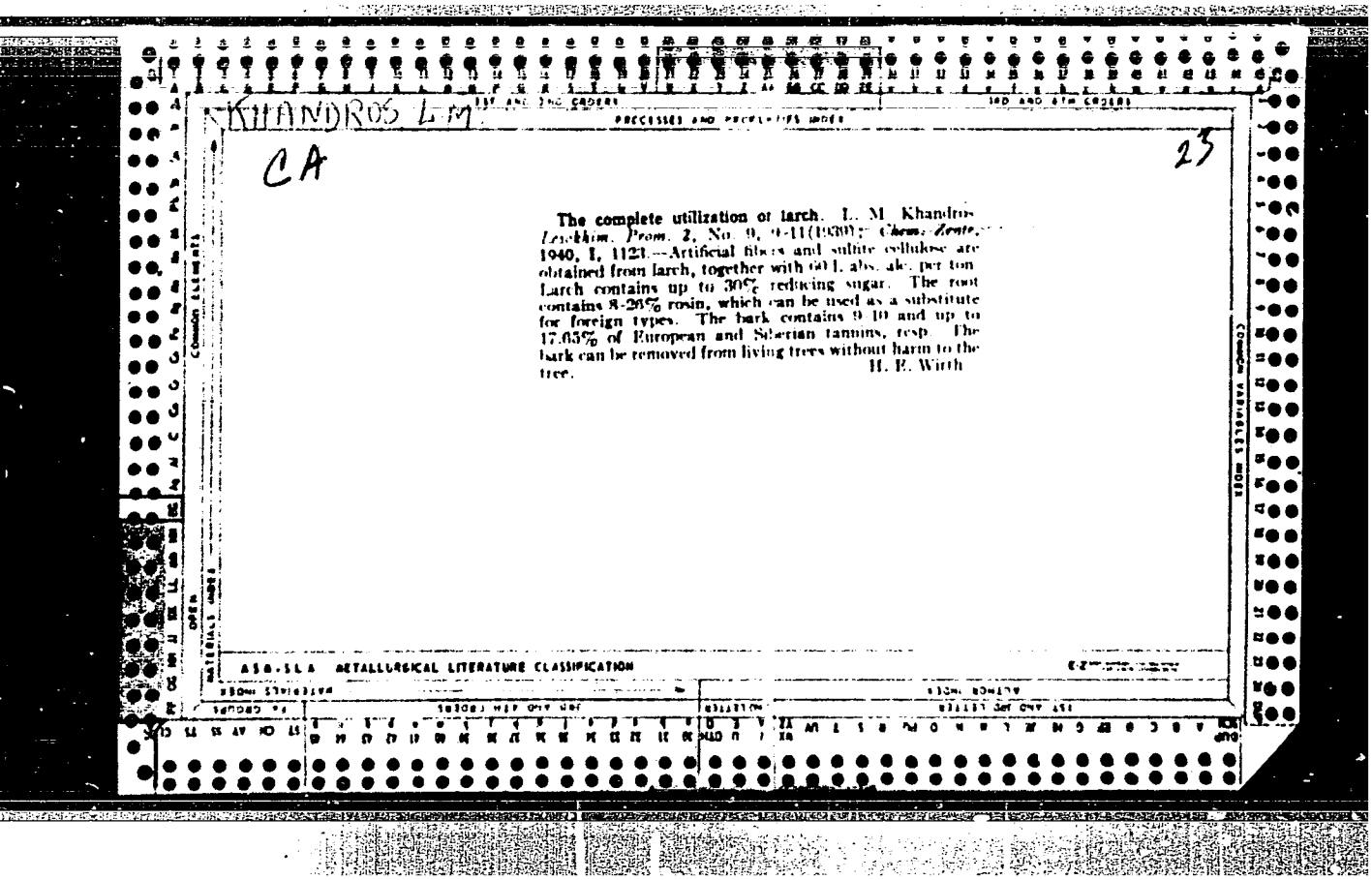
C8

16

The utilization of moss and of lichen for the production of alcohol. L. Khandross. *Spirto-vodochnaya Prom.* 14, No. 12, 6-7(1937); *Khim. Referat. Zhur.* 1, No. 4-5, 150 (1938).—Moss and lichen growing in the north U. S. S. R. are a source of raw material for the alc.-producing industry. The hemicellulose, lichenin, etc., contained in them can be saccharified by hydrolysis with H_2SO_4 or with HCl. According to Hess, lichosan, which is the base of lichenin, is an anhyd. glucose anhydride. Iceland moss also contains isolichenin, which is an amylose of starch grains. Lichenin gives on hydrolysis with acids *d*-glucose, and isolichenin gives maltose with diastase. According to Stahlschmidt ordinary moss yields 72% of glucose on hydrolysis. The expected yield of alc. per kg. of moss is 170-282 cc.

W. R. Henn





KHANDROS L M

CA

25

The complete utilization of larch. L. M. Khandros. *Leichtim. Prom.* 2, No. 9, 9-11(1939); *Chem. Zentr.*, 1940, I, 1121.—Artificial fibers and sulfite cellulose are obtained from larch, together with 60 l. alc. per ton. Larch contains up to 30% reducing sugar. The root contains 8-26% rosin, which can be used as a substitute for foreign types. The bark contains 9-10 and up to 17.65% of European and Siberian tannins, resp. The bark can be removed from living trees without harm to the tree.

H. E. Wirth

A58-SLA METALLURGICAL LITERATURE CLASSIFICATION

PA 27T72

KHANDROSS, L. M.

USSR/Metals, Rare May 1946
Strontium Salts

"The Utilization of Strontium Salts in the USSR," L. M. Khandross, 5 pp

"Priroda" No 5

In pre-revolutionary days these salts were used by the sugar beet industry. After the revolution they were still utilized in the sugar beet industry to extract the sugar which remained in the beet molasses. In addition, however, as a result of experiments of the Rare Metal Institute and the Research and Investigation Institute of Lacquer and Paints and Main Nonferrous Metal Institute, many more uses have been found in those industries for strontium salts. 27T72
TD

KHANDROS, L.M.

USSR/Chemistry - Sulfur Mar 50

"Sulfurous Waters as Industrial Sources of Colloidal Sulfur," L. M. Khandros

"Priroda" No 3, pp 37-39

Sources of sulfur waters are the Arkhangel'sk, Ul'yanovsk, and Kuybyshevsk Oblasts and the Tatar and Dagestan ASSR, etc. Sulfur there is closely assocd with gypsum. General discussion of the chemistry of sulfur and of bacteria found assocd with sulfurous compds.

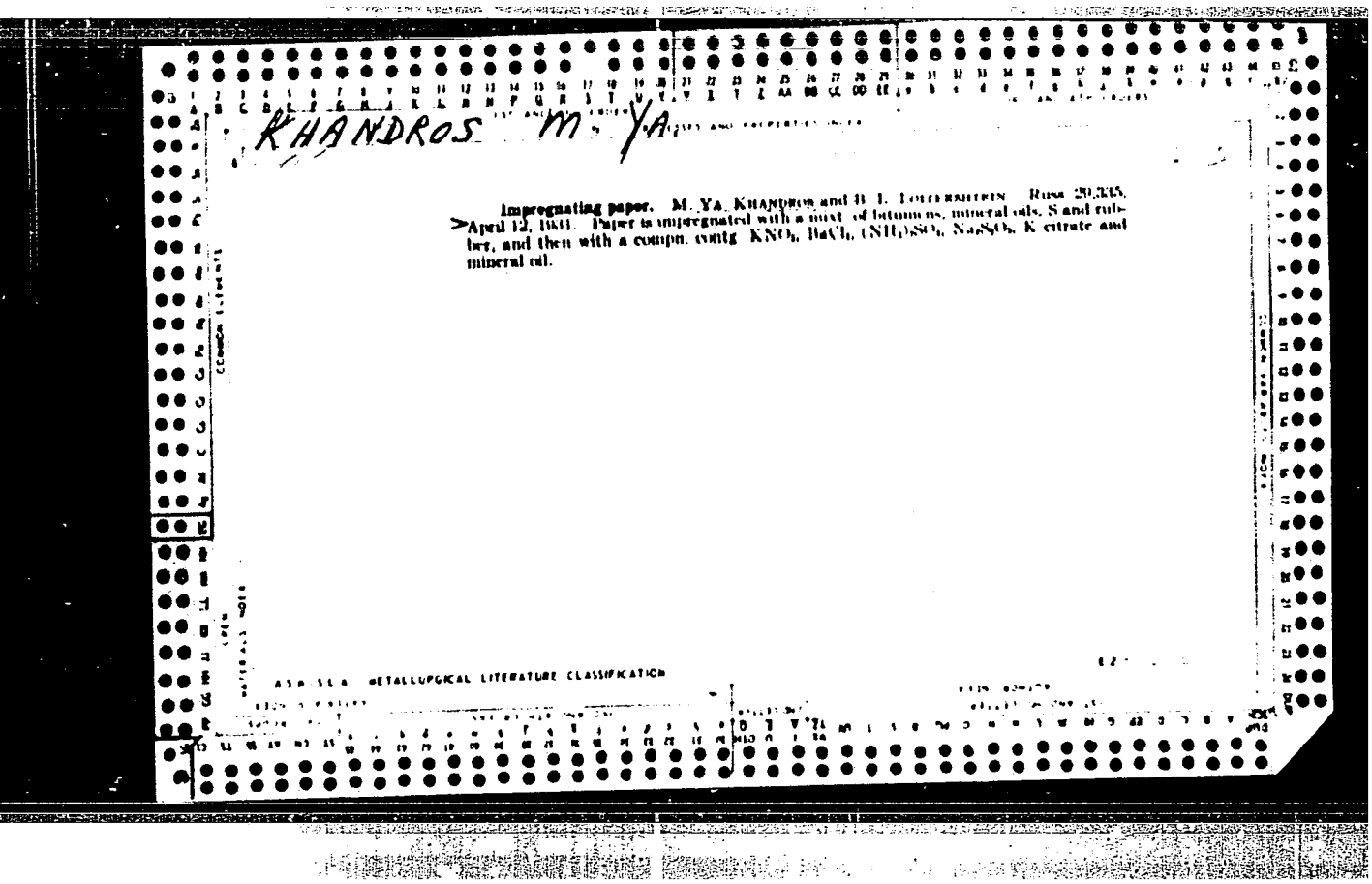
219T2

KHANDROS, I. F.

Motherwort

Motherwort and prospect for its use. Priroda 41 No. 6, 1952.

Monthly List of Russian Accessions, Library of Congress, September 1952. UNCLASSIFIED.



KHANDROS M. YA.

Impregnating paper. M. Ya. Khandros and B. I. [illegible] Russ 29,335, April 12, 1931. Paper is impregnated with a mixt. of bitumens, mineral oils, S and rubber, and then with a compn. contg. KNO_3, $BaCl_2$, $(NH_4)_2SO_4$, Na_2SO_4, K citrate and mineral oil.

ASTIA METALLURGICAL LITERATURE CLASSIFICATION